

HP G7000 Notebook PC and
Compaq Presario C700 Notebook PC
Maintenance and Service Guide

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First Edition: July 2007

Document Part Number: 447381-001

Safety warning notice

- ⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).
-

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1 Product description

| Category | Description | HP G7000 Notebook PC | Compaq Presario C700 Notebook PC |
|--------------------------|--|--------------------------|----------------------------------|
| Product Name | HP G7000 Notebook PC | √ | |
| | Compaq Presario C700 Notebook PC | | √ |
| Processors | Intel® Core™ 2 Duo processors | | |
| | T7250 2.00-GHz processor, 2-MB L2 cache, 800-MHz front side bus (FSB) | √ | √ |
| | T7100 1.80-GHz processor, 2-MB L2 cache, 800-MHz FSB | √ | √ |
| | T5450 1.67-GHz processor, 2-MB L2 cache, 667-MHz FSB | √ | √ |
| | T5250 1.50-GHz processor, 2-MB L2 cache, 667-MHz FSB | √ | √ |
| | Intel Celeron® M processors | | |
| | 550 2.00-GHz processor, 1-MB L2 cache, 533-MHz FSB | √ | √ |
| | 540 1.86-GHz processor, 1-MB L2 cache, 533-MHz FSB | √ | √ |
| | 530 1.73-GHz processor, 1-MB L2 cache, 533-MHz FSB | √ | √ |
| | Chipset | Northbridge: Intel GM965 | √ |
| Northbridge: GL960 | | √ | √ |
| Southbridge: Intel ICH8m | | √ | √ |
| Graphics | Universal memory architecture (UMA) | √ | √ |
| | <ul style="list-style-type: none"> Up to 64-MB of graphics subsystem memory on computer models with 512-MB system RAM Up to 256-MB of graphics subsystem memory on computer models with 1024-MB or more system RAM <p>Memory size change is dynamic.</p> | | |
| Panel | 15.4-inch, WSXGA with BrightView | √ | √ |

| Category | Description | HP G7000 Notebook PC | Compaq Presario C700 Notebook PC |
|-----------------------|---|----------------------|----------------------------------|
| Memory | 2 SODIMM slots | ✓ | ✓ |
| | Customer-accessible/upgradable | ✓ | ✓ |
| | Supports up to 2 GB of system RAM | ✓ | ✓ |
| | DDRII PC2-5300 (667-MHz) | ✓ | ✓ |
| | Support for: <ul style="list-style-type: none"> • 1024 (1024 × 1, 512 × 2) • 512 (512 × 1, 256 × 2) • 256 (256 × 1) | ✓ | ✓ |
| Hard drives | Support for 9.5-mm, 2.5-inch hard drives | ✓ | ✓ |
| | Serial ATA | ✓ | ✓ |
| | Support for the following drives: <ul style="list-style-type: none"> • 160-GB, 5400-rpm • 120-GB, 5400-rpm • 80-GB, 5400-rpm | ✓ | ✓ |
| | | | |
| Optical drives | Fixed (removal of 1 screw required) | ✓ | ✓ |
| | Parallel ATA | ✓ | ✓ |
| | 12.7-mm tray load | ✓ | ✓ |
| | Support for: <ul style="list-style-type: none"> • DVD±RW and CD-RW Super Multi Double-Layer Combo Drive with LightScribe • DVD±RW and CD-RW Super Multi Double-Layer Combo Drive • DVD-CD/RW Combo Drive | ✓ | ✓ |
| Diskette drive | Support for external USB drive only | ✓ | ✓ |
| Microphone | One omnidirectional monoaural microphone | ✓ | ✓ |
| Audio | Azalia high-definition (HD) audio | ✓ | ✓ |
| | HP-branded Altec Lansing speakers | ✓ | |
| | Presario-branded Altec Lansing speakers | | ✓ |
| Modem | 56K V.92 data/fax modem | ✓ | ✓ |
| Ethernet | Integrated 10/100 network interface card (NIC) | ✓ | ✓ |
| | Ethernet cable not included | ✓ | ✓ |
| Wireless | Integrated wireless local area network (WLAN) options by way of wireless module: | | |

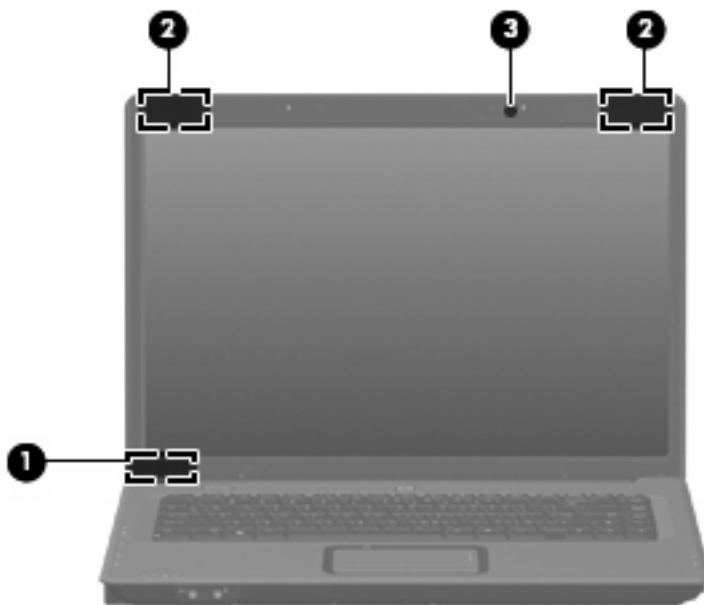
| Category | Description | HP G7000 Notebook PC | Compaq Presario C700 Notebook PC |
|----------------------------------|---|----------------------|----------------------------------|
| | Intel PRO Wireless 3945 802.11a/b/g and 802.11b/g | √ | √ |
| | Broadcom 802.11a/b/g | √ | √ |
| | Support for 2.4- and 5.0-GHz antenna integrated into the display assembly | √ | √ |
| External media card | Digital Media Slot, supports SD, MMC, MS, MSP, SD I/O, xD Type H, and xD Type M | √ | √ |
| | Support for miniature versions of SD, MMC, MS Duo with adapter (adapter is not included) | √ | √ |
| Ports | Audio-in (mono microphone) | √ | √ |
| | Audio-out (stereo headphone) | √ | √ |
| | RJ-11 (modem) | √ | √ |
| | RJ-45 (Ethernet, includes link and activity lights) | √ | √ |
| | S-Video-out (include component video support) | √ | √ |
| | USB (3) | √ | √ |
| | VGA (Dsub, 15-pin) supporting 1600 × 1200 external resolution @ 75Hz, hot plug/unplug, and autodetect for correct output to wide-aspect vs. standard-aspect video | √ | √ |
| | 2-pin, 65-W AC power | √ | √ |
| Docking | No docking | √ | √ |
| Keyboard/pointing devices | 12.0-inch keyboard | √ | √ |
| | TouchPad | √ | √ |
| | 2 rubber dome TouchPad buttons with scissor structure | √ | √ |
| | 4-way scroll | √ | √ |
| | Taps enabled as default | √ | √ |
| Power requirements | 6-cell 2.20-Ah Li-ion battery | √ | √ |
| | 65-W AC adapter with localized cable plug support (2-wire plug with ground pin, supports 2-pin DC connector) | √ | √ |
| Security | Security cable slot | √ | √ |
| Operating system | Preinstalled: | | |
| | Free DOS | √ | √ |
| | Windows Vista® Home Basic (32-bit) | √ | √ |
| | Windows Vista Premium (32-bit) | √ | √ |

| Category | Description | HP G7000 Notebook PC | Compaq Presario C700 Notebook PC |
|-----------------------|------------------------------------|-------------------------|--|
| Serviceability | End-user replaceable parts: | | |
| | AC adapter | √ | √ |
| | Battery (system) | √ | √ |
| | Hard drive | √ | √ |
| | Memory module | √ | √ |
| | Optical drive | √ | √ |
| | WLAN module | √ | √ |

2 External component identification

Top components

Display components



| Item | Component | Description |
|------|-------------------------|---|
| (1) | Internal display switch | Turns off the display if the display is closed while the computer is turned on. |
| (2) | Wireless antennae (2)* | Send and receive wireless signals to communicate with WLANs. |
| (3) | Internal microphone | Records sound. |

*To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

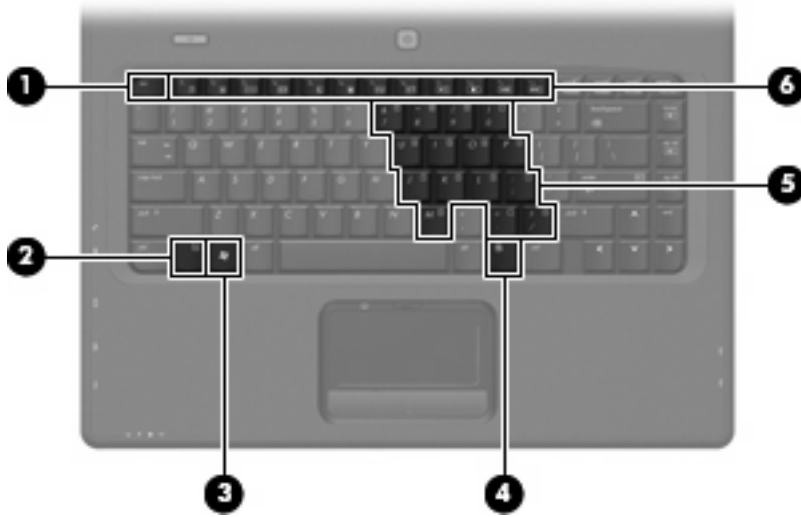
Buttons and speakers



| Item | Component | Description |
|------|--------------------|--|
| (1) | Speakers (2) | Produce sound. |
| (2) | Wireless button | Turns the wireless feature on or off, but does not create a wireless connection. NOTE: To establish a wireless connection, a wireless network must already be set up. |
| (3) | Power button* | <ul style="list-style-type: none"> When the computer is off, press the button to turn on the computer. When the computer is on, press the button to initiate Sleep. When the computer is in the Sleep state, press the button briefly to exit Sleep. When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>If the computer has stopped responding and Windows® shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about power settings, select Start > Control Panel > System and Maintenance > Power Options.</p> |
| (4) | Volume mute hotkey | Press fn+home to mute and restore speaker sound. |
| (5) | Volume up hotkey | Press fn+pg up to increase speaker volume. |
| (6) | Volume down hotkey | Press fn+pg dn to decrease speaker volume. |

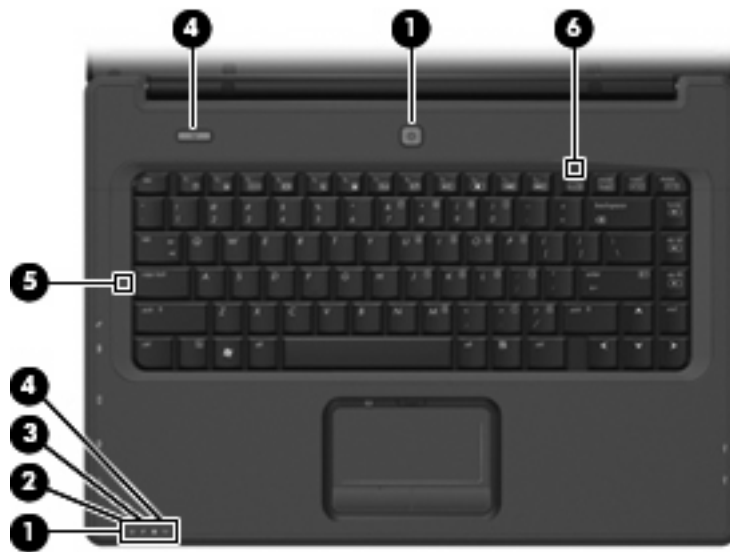
*This table describes factory settings. For information about changing factory settings, refer to the user guides located in Help and Support.

Keys



| Item | Component | Function |
|------|------------------------------|--|
| (1) | esc key | Displays system information when pressed in combination with the fn key. |
| (2) | fn key | Executes frequently used system functions when pressed in combination with a function key or the esc key. |
| (3) | Windows logo key | Displays the Windows Start menu. |
| (4) | Windows applications key | Displays a shortcut menu for items beneath the pointer. |
| (5) | Embedded numeric keypad keys | Can be used like the keys on an external numeric keypad. |
| (6) | Function keys | Execute frequently used system functions when pressed in combination with the fn key. |

Lights

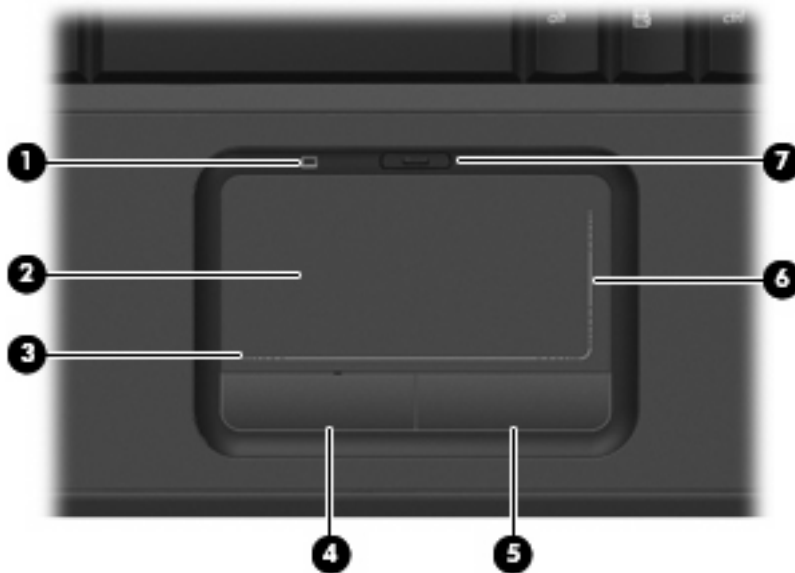


| Item | Component | Description |
|------|----------------------|---|
| (1) | Power lights (2)* | <ul style="list-style-type: none"> On: The computer is on. Blinking: The computer is in the Sleep state. Off: The computer is off or in Hibernation. |
| (2) | Battery light | <ul style="list-style-type: none"> On: A battery is charging. Blinking: A battery that is the only available power source has reached a low battery level or a critical battery level. Off: If the computer is plugged into an external power source, the light is turned off when all batteries in the computer are fully charged. If the computer is not plugged into an external power source, the light stays off until the battery reaches a low battery level. |
| (3) | Drive light | Blinking: The hard drive or optical drive is being accessed. |
| (4) | Wireless lights (2)† | <ul style="list-style-type: none"> Blue: An integrated wireless device, such as a WLAN device, is turned on. Amber: An integrated wireless device is turned off. |
| (5) | Caps lock light | On: Caps lock is on. |
| (6) | Num lock light | On: Num lock is on or the embedded numeric keypad is enabled. |

*The 2 power lights display the same information. The light on the power button is visible only when the computer is open. The power light on the front of the computer is visible whether the computer is open or closed.

†The 2 wireless lights display the same information. The light on the wireless button is visible only when the computer is open. The wireless light on the front of the computer is visible whether the computer is open or closed.

TouchPad



| Item | Component | Function |
|------|----------------------------------|--|
| (1) | TouchPad light | <ul style="list-style-type: none"> Blue: TouchPad is enabled. Amber: TouchPad is disabled. |
| (2) | TouchPad* | Moves the pointer and selects or activates items on the screen. |
| (3) | TouchPad horizontal scroll zone* | Scrolls left or right. |
| (4) | Left TouchPad button* | Functions like the left button on an external mouse. |
| (5) | Right TouchPad button* | Functions like the right button on an external mouse. |
| (6) | TouchPad vertical scroll zone* | Scrolls up or down. |
| (7) | TouchPad on/off button | Enables/disables the TouchPad. |

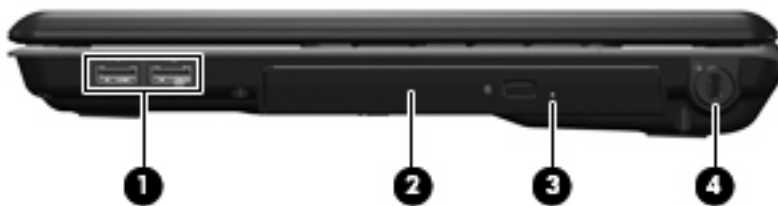
*This table describes factory settings. To view or change pointing device preferences, select **Start > Control Panel > Hardware and Sound > Mouse**.

Front components



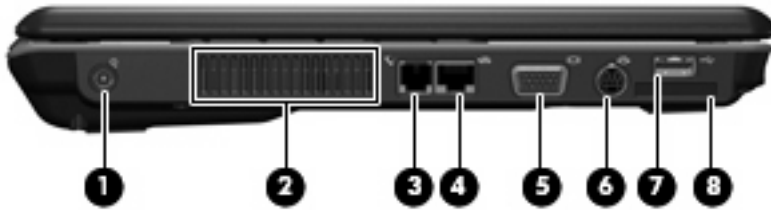
| Item | Component | Function |
|------|----------------------------|--|
| (1) | Audio-out (headphone) jack | Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio. |
| (2) | Audio-in (microphone) | Connects an optional computer headset microphone, stereo array microphone, or monaural microphone. |

Right-side components



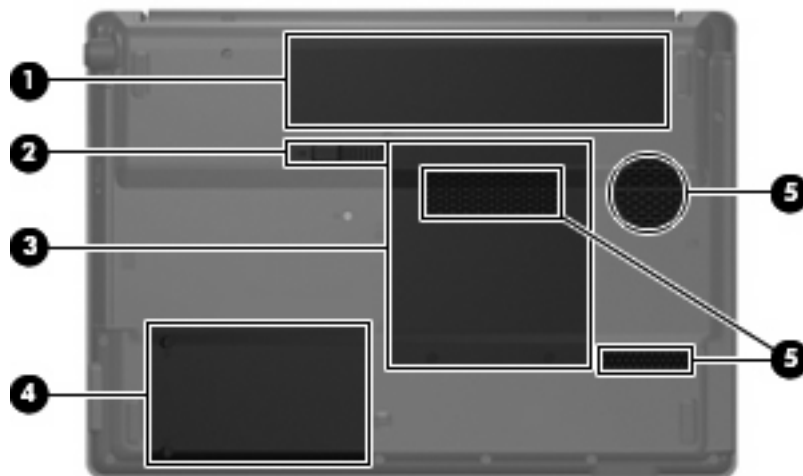
| Item | Component | Function |
|------|---------------------|--|
| (1) | USB ports | Connect optional USB devices. |
| (2) | Optical drive | Reads optical discs, and, on select models, also writes to optical discs. |
| (3) | Optical drive light | On: The optical drive is being accessed. |
| (4) | Security cable slot | Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but may not prevent the computer from being mishandled or stolen. |

Left-side components



| Item | Component | Function |
|------|-----------------------|--|
| (1) | Power connector | Connects an AC adapter. |
| (2) | Vents (4) | Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation. |
| (3) | RJ-11 (modem) jack | Connects a modem cable. |
| (4) | RJ-45 (network) jack | Connects a network cable. |
| (5) | External monitor port | Connects an external VGA monitor or projector. |
| (6) | S-Video-out jack | Connects an optional S-Video device such as a television, VCR, camcorder, overhead projector, or video capture card. |
| (7) | USB port | Connects optional USB devices. |
| (8) | Digital Media Slot | Supports the following optional digital card formats: <ul style="list-style-type: none">• Memory Stick (MS)• Memory Stick Pro (MSP)• MultiMediaCard (MMC)• Secure Digital Input/Output (SD I/O)• Secure Digital (SD) Memory Card• xDPicture Card (XD)• xD-Picture Card (XD) Type H• xD-Picture Card (XD) Type M |

Bottom components

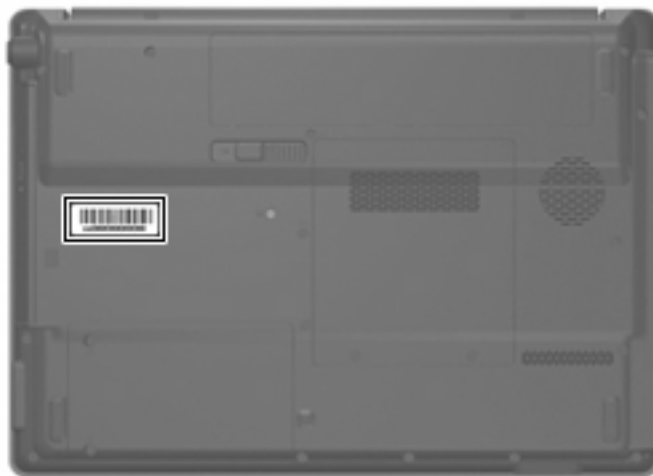


| Item | Component | Function |
|------|------------------------------------|--|
| (1) | Battery bay | Holds the battery. |
| (2) | Battery release latch | Releases the battery from the battery bay. |
| (3) | Memory/wireless module compartment | Contains 2 memory slots and a wireless module slot. CAUTION: To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore computer functionality, and then contact technical support through Help and Support. |
| (4) | Hard drive bay | Holds the hard drive. |
| (5) | Vents (3) | Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation. |

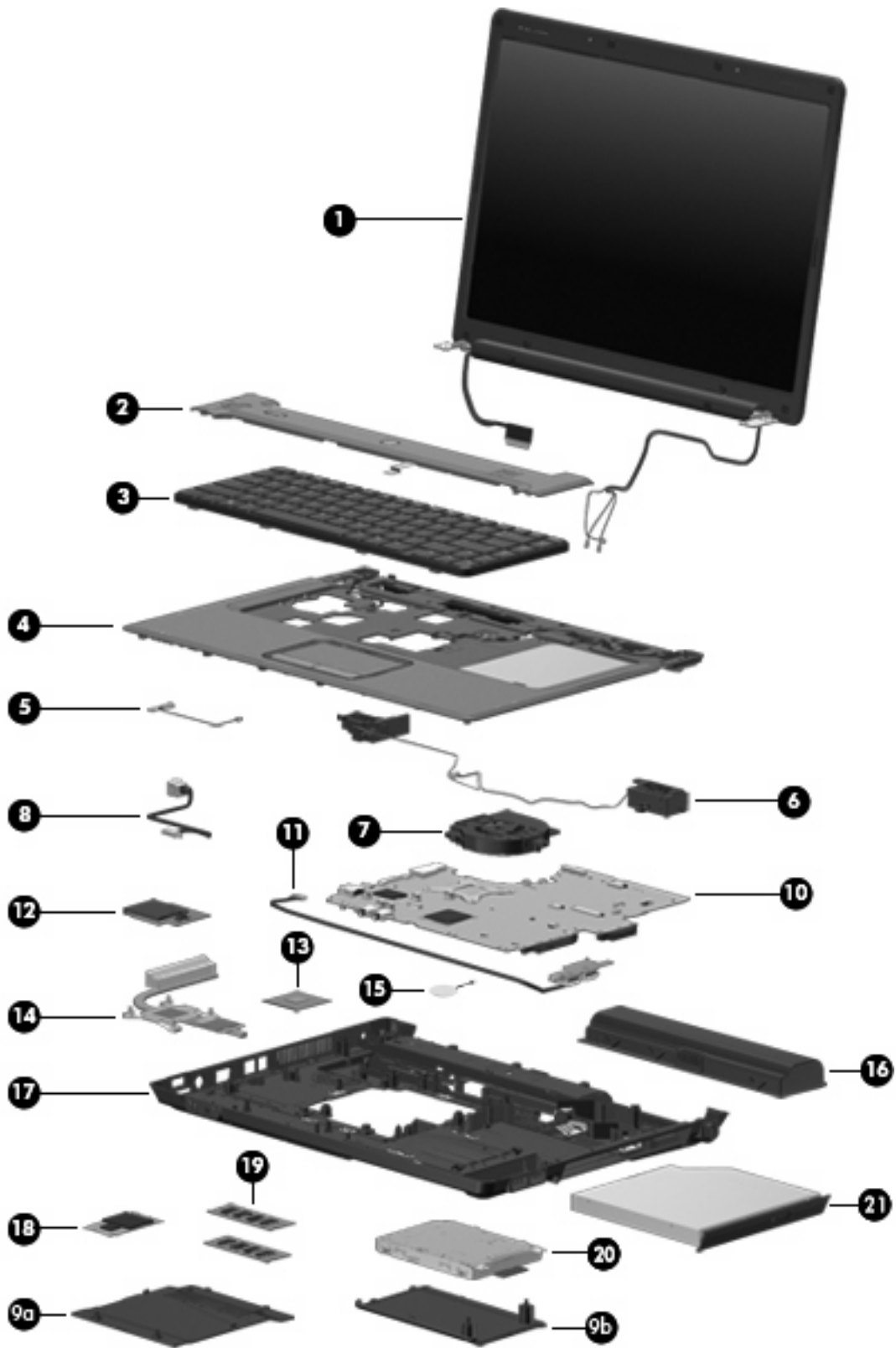
3 Illustrated parts catalog

Serial number location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.



Computer major components



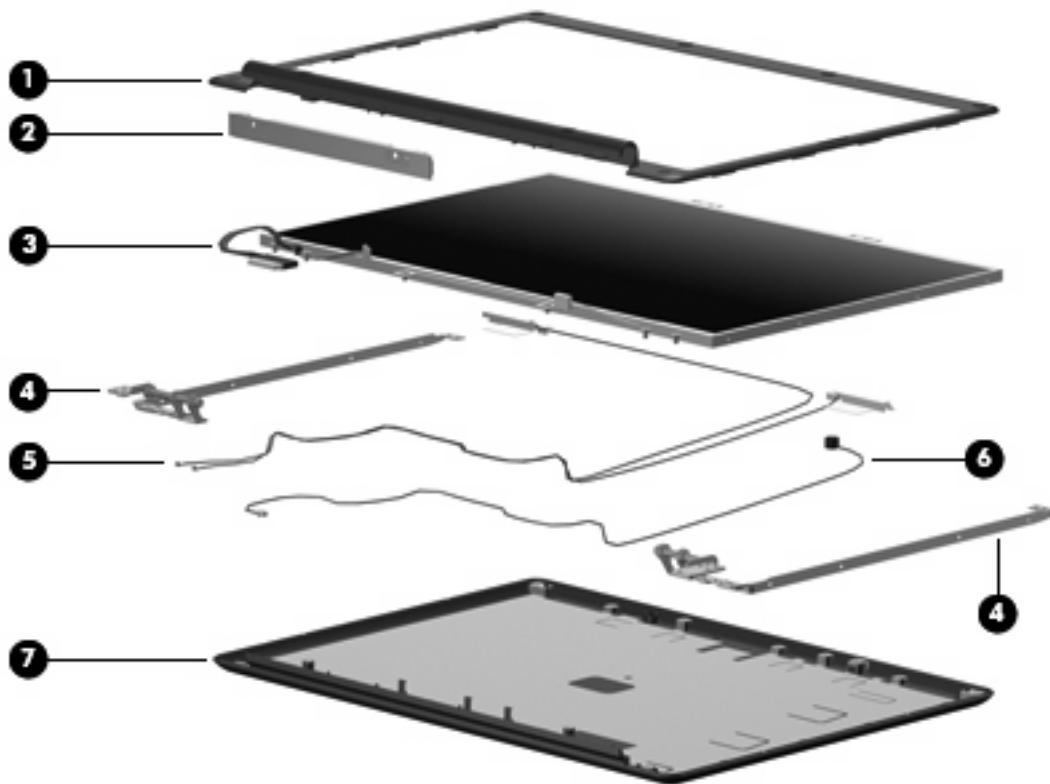
| Item | Description | Spare part number |
|-------------|--|--------------------------|
| (1) | 15.4-inch, WSXGA BrightView display assemblies (include 2 microphones and 2 wireless antenna transceivers and cables) | |
| | For use only with HP G7000 computer models | 454932-001 |
| | For use only with Compaq Presario C700 computer models | 454934-001 |
| (2) | Switch cover (includes power button board and cable, wireless button board and cable, and numeric lock LED board and cable) | 454940-001 |
| (3) | Keyboards | |
| | Belgium | 454954-A41 |
| | Brazil | 454954-201 |
| | Denmark, Finland, Norway, and Sweden | 454954-DH1 |
| | France | 454954-051 |
| | French Canada | 454954-121 |
| | Germany | 454954-041 |
| | Greece | 454954-151 |
| | Italy | 454954-061 |
| | Japan | 454954-291 |
| | Latin America | 454954-161 |
| | The Netherlands and Europe | 454954-B31 |
| | Portugal | 454954-131 |
| | Russia | 454954-251 |
| | Saudi Arabia | 454954-171 |
| | South Korea | 454954-AD1 |
| | Spain | 454954-071 |
| | Switzerland | 454954-BG1 |
| | Taiwan | 454954-AB1 |
| | Thailand | 454954-281 |
| | Turkey | 454954-141 |
| | The United Kingdom | 454954-031 |
| | The United States | 454954-001 |
| (4) | Top cover (includes TouchPad and cable) | 454936-001 |
| (5) | Caps lock LED board (includes cable) | 454948-001 |
| (6) | Speakers | 454946-001 |
| (7) | Fan | 454944-001 |
| (8) | Power connector cable | 454945-001 |
| | Plastics Kit (see Plastics Kit on page 20 for more information) | 454937-001 |

| Item | Description | Spare part number |
|-------------|---|--------------------------|
| (9a) | Hard drive bay cover | |
| (9b) | Memory/wireless module compartment cover | |
| (10) | System boards (include replacement thermal material and modem cable) | |
| | For use only with computer models equipped with Intel Core 2 Duo and Core Duo processors and a card reader board | 453494-001 |
| | For use only with computer models equipped with Intel Core 2 Duo and Core Duo processors, but not a card reader board | 445882-001 |
| | For use only with computer models equipped with Intel Celeron M processors and a card reader board | 453495-001 |
| | For use only with computer models equipped with Intel Celeron M processors, but not a card reader board | 454883-001 |
| | Modem cable (not illustrated) | 454950-001 |
| (11) | USB board (includes cable) | 454941-001 |
| (12) | Card reader board (for use only with system boards with spare part numbers 453494-001 and 453495-001) | 454949-001 |
| (13) | Processors (include replacement thermal material) | |
| | Intel Core 2 Duo T7250 (2.00-GHz, 2 MB of L2 cache, 800-MHz FSB) | 454320-001 |
| | Intel Core 2 Duo T7100 (1.80-GHz, 2 MB of L2 cache, 800-MHz FSB) | 448149-001 |
| | Intel Core Duo T5450 (1.67-GHz, 2 MB of L2 cache, 667-MHz FSB) | 451597-001 |
| | Intel Core Duo T5250 (1.50-GHz, 2 MB of L2 cache, 667-MHz FSB) | 453948-001 |
| | Intel Core Duo T2330 (1.60-GHz, 1 MB of L2 cache, 667-MHz FSB) | 455944-001 |
| | Intel Core Duo T2310 (1.46-GHz, 1 MB of L2 cache, 667-MHz FSB) | 455943-001 |
| | Intel Celeron M 550 (2.00-GHz, 1 MB of L2 cache, 533-MHz FSB) | 454322-001 |
| | Intel Celeron M 540 (1.86-GHz, 1 MB of L2 cache, 533-MHz FSB) | 454321-001 |
| | Intel Celeron M 530 (1.73-GHz, 1 MB of L2 cache, 533-MHz FSB) | 455437-001 |
| (14) | Heat sink (includes thermal material) | 454943-001 |
| (15) | RTC battery | 454947-001 |
| (16) | 6-cell, 2.20-Ah, 47-Wh Li-ion battery | 454931-001 |
| (17) | Base enclosures (includes 6 base rubber feet) | |
| | For use only with computer models equipped with a card reader board | 454939-001 |
| | For use only with computer models not equipped with a card reader board | 454938-001 |
| | Rubber Foot Kit (includes 6 base enclosure rubber feet) | 454952-001 |
| (18) | WLAN modules | |
| | Broadcom 802.11 a/b/g WLAN modules: | |
| | <ul style="list-style-type: none"> For use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam | 441075-001 |

| Item | Description | Spare part number |
|---|--|-------------------|
| | <ul style="list-style-type: none"> For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan | 441075-002 |
| | <ul style="list-style-type: none"> For use in Ecuador, Haiti, Honduras, Pakistan, the People's Republic of China, Peru, Qatar, South Korea, Uruguay, and Venezuela | 441075-291 |
| Intel 802.11a/b/g WLAN modules: | | |
| | <ul style="list-style-type: none"> For use in Antigua and Barbuda, Argentina, Aruba, the Bahamas, Barbados, Bermuda, Brunei, Canada, the Cayman Islands, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Malaysia, Mexico, Panama, Paraguay, Peru, Saudi Arabia, Taiwan, Uruguay, the United States, Venezuela, and Vietnam | 451861-001 |
| | <ul style="list-style-type: none"> For use in Austria, Azerbaijan, Bahrain, Belgium, Brazil, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Qatar, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Uzbekistan | 451861-002 |
| | <ul style="list-style-type: none"> For use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea | 451861-003 |
| | <ul style="list-style-type: none"> For use in Japan | 451861-291 |
| Broadcom 802.11b/g WLAN modules: | | |
| | <ul style="list-style-type: none"> For use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam | 441090-001 |
| | <ul style="list-style-type: none"> For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan | 441090-002 |
| | <ul style="list-style-type: none"> For use in Ecuador, Haiti, Honduras, Pakistan, the People's Republic of China, Peru, Qatar, South Korea, Uruguay, and Venezuela | 441090-291 |
| | Broadcom 802.11b/g WLAN module for use in Thailand | 451861-004 |
| (19) | Memory modules | |
| | 1024-MB (PC2-5300, 667-MHz, DDR2) | 454922-001 |
| | 512-MB (PC2-5300, 667-MHz, DDR2) | 454921-001 |
| | 256-MB (PC2-5300, 667-MHz, DDR2) | 454920-001 |
| (20) | Hard drives (includes bracket) | |
| | 160-GB, 5400-rpm | 454925-001 |
| | 120-GB, 5400-rpm | 454924-001 |

| Item | Description | Spare part number |
|-------------|---|--------------------------|
| | 80-GB, 5400-rpm | 454923-001 |
| | Hard Drive Kit (not illustrated, includes hard drive bracket and screws) | 454926-001 |
| (21) | Optical drives (include bezel and bracket) | |
| | DVD±RW and CD-RW Super Multi, Double-Layer Combo Drive with LightScribe | 454929-001 |
| | DVD±RW and CD-RW Super Multi, Double-Layer Combo Drive | 454928-001 |
| | DVD/CD-RW Combo Drive | 454927-001 |
| | Optical Drive Kit (not illustrated, includes bezel, bracket, and screws) | 454930-001 |

Display assembly components



| Item | Description | Spare part number |
|------------|---|-------------------|
| (1) | Display bezels | |
| | For use only with HP G7000 computer models | 454909-001 |
| | For use only with Compaq Presario C700 computer models | 454910-001 |
| (2) | Display inverter (includes Mylar shield) | 454915-001 |
| (3) | 15.4-inch, WSXGA + BrightView display panel (includes display panel cable) | 454323-001 |
| (4) | Display Hinge Kit (includes left and right display hinges) | 454916-001 |
| (5) | Wireless Antenna Kit (includes 2 wireless antenna transceivers and cables) | 454919-001 |
| (6) | Display Cable Kit (includes microphone) | 454919-001 |
| (7) | Display enclosures (include 2 wireless antenna transceivers and cables) | |
| | For use only with HP G7000 computer models | 454911-001 |
| | For use only with Compaq Presario C700 computer models | 454913-001 |
| | Display Rubber Kit (not illustrated; includes rubber screw covers) | 454917-001 |
| | Display Screw Kit (not illustrated) | 454918-001 |

Plastics Kit



| Item | Description | Spare part number |
|------|--|-------------------|
| | Plastics Kit | 454937-001 |
| (1) | Memory/wireless module compartment cover (includes 2 captive screws, secured by C-clips) | |
| (2) | Hard drive bay cover (includes 2 captive screws, secured by C-clips) | |

Mass storage devices



| Item | Description | Spare part number |
|------------|---|-------------------|
| (1) | Hard drives (include bracket) | |
| | 160-GB, 5400-rpm | 454925-001 |
| | 120-GB, 5400-rpm | 454924-001 |
| | 80-GB, 5400-rpm | 454923-001 |
| | Hard Drive Kit (not illustrated, includes hard drive bracket and screws) | 454926-001 |
| (2) | Optical drives (include bezel and bracket) | |
| | DVD±RW and CD-RW Super Multi, Double-Layer Combo Drive with LightScribe | 454929-001 |
| | DVD±RW and CD-RW Super Multi, Double-Layer Combo Drive | 454928-001 |
| | DVD/CD-RW Combo Drive | 454927-001 |
| | Optical Drive Kit (not illustrated, includes bezel, bracket, and screws) | 454930-001 |

Miscellaneous parts

| Description | Spare part number |
|--|-------------------|
| 65-W PFC AC adapter | 457685-001 |
| ATSC/NTSC/PAL TV tuner | 439130-001 |
| ATSC/NTSC TV tuner antenna | 439131-001 |
| Composite audio and S-Video cable | 407939-001 |
| DVB-T tuner | 412175-001 |
| DVB-T antenna adapter | 412176-001 |
| Earbud headset | 371693-003 |
| HP backpack | 405527-001 |
| HP carrying case | 418162-001 |
| HP Remote Control | 407313-001 |
| Infrared emitter with cable | 439129-001 |
| Optical wired mouse | 436238-001 |
| RF input adapter cable (without ferrite) | 407940-001 |
| Windows Vista remote control (fits inside ExpressCard slot) | 439128-001 |
| Windows Vista remote control (does not fit inside ExpressCard slot) | 439254-001 |
| Wireless laser mouse (includes cable adapter) | 430958-001 |
| Power cords: | |
| Argentina | 403811-D01 |
| Australia and New Zealand | 403811-011 |
| Brazil | 403811-201 |
| Canada, French Canada, Latin America, Thailand, and the United States | 403811-001 |
| Denmark | 403811-081 |
| India | 403811-D61 |
| Italy | 403811-061 |
| Japan | 403811-291 |
| The Netherlands and Europe | 403811-B31 |
| The People's Republic of China | 403811-AA1 |
| South Africa | 403811-AR1 |
| South Korea | 403811-AD1 |
| Switzerland | 403811-111 |
| Taiwan | 403811-AB1 |

| Description | Spare part number |
|--|-------------------|
| Hong Kong and the United Kingdom | 403811-031 |
| Screw Kit | 454951-001 |
| <ul style="list-style-type: none"> • Phillips PM3.0×3.0 screw | |
| <ul style="list-style-type: none"> • Phillips PM2.5×9.0 screw | |
| <ul style="list-style-type: none"> • Phillips PM2.5×7.0 screw | |
| <ul style="list-style-type: none"> • Phillips PM2.5×6.0 captive screw | |
| <ul style="list-style-type: none"> • Phillips PM2.5×4.0 screw | |
| <ul style="list-style-type: none"> • Phillips PM2.0×5.0 captive screw | |
| <ul style="list-style-type: none"> • Black Phillips PM2.0×4.0 screw | |
| <ul style="list-style-type: none"> • Silver Phillips PM2.0×4.0 screw | |

Sequential part number listing

| Spare part number | Description |
|-------------------|--|
| 371693-003 | Earbud headset |
| 403811-001 | Power cord for use in Canada, French Canada, Latin America, Thailand, and the United States |
| 403811-011 | Power cord for use in Australia and New Zealand |
| 403811-031 | Power cord for use in Hong Kong and the United Kingdom |
| 403811-061 | Power cord for use in Italy |
| 403811-081 | Power cord for use in Denmark |
| 403811-111 | Power cord for use in Switzerland |
| 403811-201 | Power cord for use in Brazil |
| 403811-291 | Power cord for use in Japan |
| 403811-AA1 | Power cord for use in the People's Republic of China |
| 403811-AB1 | Power cord for use in Taiwan |
| 403811-AD1 | Power cord for use in South Korea |
| 403811-AR1 | Power cord for use in South Africa |
| 403811-B31 | Power cord for use in the Netherlands |
| 403811-D01 | Power cord for use in Argentina |
| 403811-D61 | Power cord for use in India |
| 405527-001 | HP backpack |
| 407313-001 | HP Remote Control |
| 407939-001 | Composite audio and S-Video cable |
| 407940-001 | RF input adapter cable (without ferrite) |
| 412175-001 | DVB-T tuner |
| 412176-001 | DVB-T antenna adapter |
| 418162-001 | HP carrying case |
| 430958-001 | Wireless laser mouse (includes cable adapter) |
| 436238-001 | Optical wired mouse |
| 439128-001 | Windows Vista remote control (fits inside ExpressCard slot) |
| 439129-001 | Infrared emitter with cable |
| 439130-001 | ATSC/NTSC/PAL TV tuner |
| 439131-001 | ATSC/NTSC TV tuner antenna |
| 439254-001 | Windows Vista remote control (does not fit inside ExpressCard slot) |
| 441075-001 | Broadcom 802.11a/b/g WLAN module for use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam |

| Spare part number | Description |
|-------------------|---|
| 441075-002 | Broadcom 802.11a/b/g WLAN module for use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan |
| 441075-291 | Broadcom 802.11a/b/g WLAN module for use in Japan |
| 441090-001 | Broadcom 802.11b/g WLAN module for use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam |
| 441090-002 | Broadcom 802.11b/g WLAN module for use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan |
| 441090-291 | Broadcom 802.11b/g WLAN module for use in Japan |
| 448149-001 | Intel Core 2 Duo T7100 1.80-GHz processor (2 MB of L2 cache, 800-MHz FSB) |
| 451597-001 | Intel Core Duo T5450 1.67-GHz processor (2 MB of L2 cache, 667-MHz FSB) |
| 451861-001 | Intel 802.11a/b/g WLAN module for use in Antigua and Barbuda, Argentina, Aruba, the Bahamas, Barbados, Bermuda, Brunei, Canada, the Cayman Islands, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Malaysia, Mexico, Panama, Paraguay, Peru, Saudi Arabia, Taiwan, Uruguay, the United States, Venezuela, and Vietnam |
| 451861-002 | Intel 802.11a/b/g WLAN module for use in Austria, Azerbaijan, Bahrain, Belgium, Brazil, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Qatar, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Uzbekistan |
| 451861-003 | Intel 802.11a/b/g WLAN module for use in Australia, New Zealand, Pakistan, the People's Republic of China, and South Korea |
| 451861-004 | Intel 802.11a/b/g WLAN module for use in Thailand |
| 451861-291 | Intel 802.11a/b/g WLAN module for use in Japan |
| 453494-001 | System board for use only with computer models equipped with Intel Core 2 Duo and Core Duo processors and a card reader board |
| 453495-001 | System board for use only with computer models equipped with Intel Core 2 Duo and Core Duo processors, but not a card reader board |
| 453948-001 | Intel Core Duo T5250 1.50-GHz processor (2 MB of L2 cache, 667-MHz FSB) |
| 454320-001 | Intel Core 2 Duo T7250 2.00-GHz processor (2 MB of L2 cache, 800-MHz FSB) |
| 454321-001 | Intel Celeron M 540 1.86-GHz processor (1 MB of L2 cache, 533-MHz FSB) |
| 454322-001 | Intel Celeron M 550 2.00-GHz processor (1 MB of L2 cache, 533-MHz FSB) |
| 454323-001 | 15.4-inch, WSXGA + BrightView display panel (includes display panel cable) |
| 454882-001 | System board for use only with computer models equipped with Intel Celeron M processors and a card reader board |

| Spare part number | Description |
|--------------------------|---|
| 454883-001 | System board for use only with computer models equipped with Intel Celeron M processors, but not a card reader board |
| 454909-001 | Display bezel for use only with HP G7000 computer models |
| 454910-001 | Display bezel for use only with Compaq Presario C700 computer models |
| 454911-001 | Display enclosure for use only with HP G7000 computer models (includes 2 WLAN antenna transceivers and cables and microphone) |
| 454913-001 | Display enclosure for use only with Compaq Presario C700 computer models (includes 2 WLAN antenna transceivers and cables and microphone) |
| 454915-001 | Display inverter (includes Mylar shield) |
| 454916-001 | Display hinges |
| 454917-001 | Display Rubber Kit |
| 454918-001 | Display Screw Kit |
| 454919-001 | Display Cable Kit |
| 454920-001 | 256-MB memory module (PC2-5300, 667-MHz, DDR2) |
| 454921-001 | 512-MB memory module (PC2-5300, 667-MHz, DDR2) |
| 454922-001 | 1024-MB memory module (PC2-5300, 667-MHz, DDR2) |
| 454923-001 | 80-GB, 5400-rpm hard drive (includes bracket) |
| 454924-001 | 120-GB, 5400-rpm hard drive (includes bracket) |
| 454925-001 | 160-GB, 5400-rpm hard drive (includes bracket) |
| 454926-001 | Hard Drive Kit (includes hard drive bracket and screws) |
| 454927-001 | DVD/CD-RW Combo Drive |
| 454928-001 | DVD±RW and CD-RW Super Multi, Double-Layer Combo Drive |
| 454929-001 | DVD±RW and CD-RW Super Multi, Double-Layer Combo Drive with LightScribe |
| 454930-001 | Optical Drive Kit (includes bezel, bracket, and screws) |
| 454931-001 | 6-cell, 2.2-Ah, 47-Wh battery |
| 454932-001 | 15.4-inch, WSXGA + BrightView display assembly for use only with HP G7000 computer models |
| 454934-001 | 15.4-inch, WSXGA + BrightView display assembly for use only with Compaq Presario C700 computer models |
| 454936-001 | Top cover (includes TouchPad and cable) |
| 454937-001 | Plastics Kit (see Plastics Kit on page 20 for more information) |
| 454938-001 | Base enclosure for use only with computer models equipped with a card reader board |
| 454939-001 | Base enclosure for use only with computer models not equipped with a card reader board |
| 454940-001 | Switch cover (includes power button board and cable, wireless button board and cable, and numeric lock LED board and cable) |
| 454941-001 | USB board (includes cable) |
| 454943-001 | Heat sink (includes replacement thermal material) |

| Spare part number | Description |
|--------------------------|---|
| 454944-001 | Fan |
| 454945-001 | Power connector cable |
| 454946-001 | Speakers |
| 454947-001 | RTC battery |
| 454948-001 | Caps lock LED board (includes cable) |
| 454949-001 | Card reader board |
| 454950-001 | Modem cable |
| 454951-001 | Screw Kit |
| 454952-001 | Rubber Foot Kit |
| 454954-001 | Keyboard for use in the United States |
| 454954-031 | Keyboard for use in the United Kingdom |
| 454954-041 | Keyboard for use in Germany |
| 454954-051 | Keyboard for use in France |
| 454954-061 | Keyboard for use in Italy |
| 454954-071 | Keyboard for use in Spain |
| 454954-121 | Keyboard for use in French Canada |
| 454954-131 | Keyboard for use in Portugal |
| 454954-141 | Keyboard for use in Turkey |
| 454954-151 | Keyboard for use in Greece |
| 454954-161 | Keyboard for use in Latin America |
| 454954-171 | Keyboard for use in Saudi Arabia |
| 454954-201 | Keyboard for use in Brazil |
| 454954-251 | Keyboard for use in Russia |
| 454954-281 | Keyboard for use in Thailand |
| 454954-291 | Keyboard for use in Japan |
| 454954-A41 | Keyboard for use in Belgium |
| 454954-AB1 | Keyboard for use in Taiwan |
| 454954-AD1 | Keyboard for use in South Korea |
| 454954-B31 | Keyboard for use in the Netherlands |
| 454954-BG1 | Keyboard for use in Switzerland |
| 454954-DH1 | Keyboard for use in Denmark, Finland, Norway, and Sweden |
| 455437-001 | Intel Celeron M 530 1.73-GHz processor (1 MB of L2 cache, 533-MHz FSB) |
| 455943-001 | Intel Core Duo T2310 1.46-GHz processor (1 MB of L2 cache, 667-MHz FSB) |

| Spare part number | Description |
|--------------------------|---|
| 455944-001 | Intel Core Duo T2330 1.60-GHz processor (1 MB of L2 cache, 667-MHz FSB) |
| 457685-001 | 65-W AC adapter |

4 Removal and replacement procedures

Preliminary replacement requirements


Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.

 **NOTE:** As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts

Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

-
- △ **CAUTION:** When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.
-

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

-
- △ **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:
-

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package "FRAGILE."

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

△ **CAUTION:** To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Use nonmagnetic tools.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

△ **CAUTION:** A product can be degraded by as little as 700 V.

| Typical electrostatic voltage levels | | | |
|--------------------------------------|-------------------|----------|---------|
| Event | Relative humidity | | |
| | 10% | 40% | 55% |
| Walking across carpet | 35,000 V | 15,000 V | 7,500 V |
| Walking across vinyl floor | 12,000 V | 5,000 V | 3,000 V |
| Motions of bench worker | 6,000 V | 800 V | 400 V |
| Removing DIPS from plastic tube | 2,000 V | 700 V | 400 V |
| Removing DIPS from vinyl tray | 11,500 V | 4,000 V | 2,000 V |
| Removing DIPS from Styrofoam | 14,500 V | 5,000 V | 3,500 V |
| Removing bubble pack from PCB | 26,500 V | 20,000 V | 7,000 V |
| Packing PCBs in foam-lined box | 21,000 V | 11,000 V | 5,000 V |

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

| Material | Use | Voltage protection level |
|-----------------------|------------|--------------------------|
| Antistatic plastic | Bags | 1,500 V |
| Carbon-loaded plastic | Floor mats | 7,500 V |
| Metallized laminate | Floor mats | 5,000 V |

Unknown user password

If the computer you are servicing has an unknown user password, follow these steps to clear the password.

 **NOTE:** These steps also clear CMOS.

Before disassembling the computer, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the RTC battery (see [RTC battery on page 68](#)).
6. Wait approximately 5 minutes.
7. Replace the RTC battery and reassemble the computer.
8. Connect AC power to the computer. Do not reinsert any batteries at this time.
9. Turn on the computer.

All passwords and all CMOS settings have been cleared.

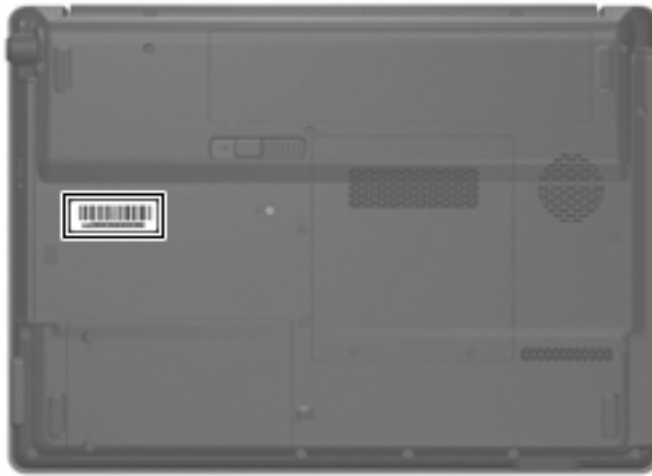
Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 79 screws, in 9 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Serial number

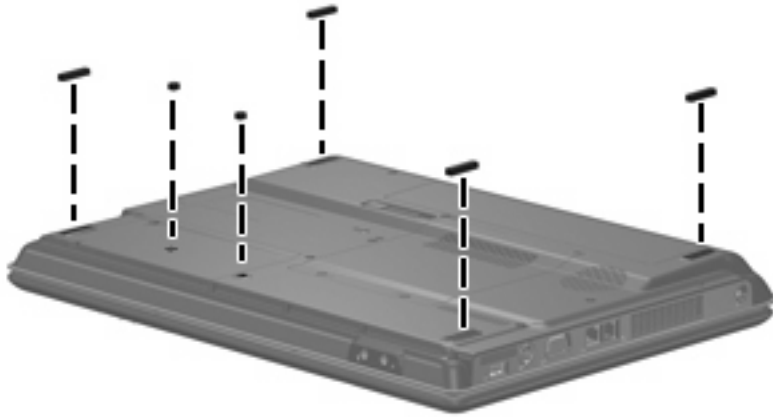
Report the computer serial number to HP when requesting information or ordering spare parts. The serial number is located on the bottom of the computer.



Computer feet

| Description | Spare part number |
|---|-------------------|
| Rubber Foot Kit (includes 6 base enclosure rubber feet) | 454952-001 |

The computer feet are adhesive-backed rubber pads. The feet attach to the base enclosure in the locations illustrated below.



Battery

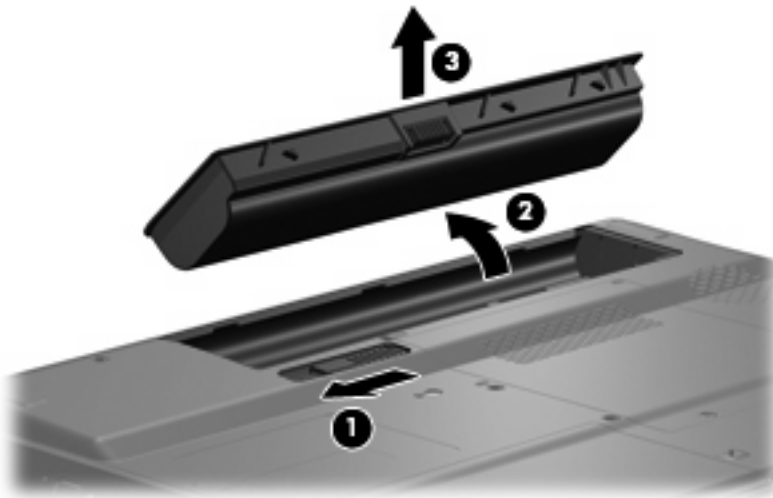
| Description | Spare part number |
|---------------------------------------|-------------------|
| 6-cell, 2.20-Ah, 47-Wh Li-ion battery | 454931-001 |

Before disassembling the computer, follow these steps

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.


Remove the battery:

1. Turn the computer upside down on a flat surface.
2. Slide the battery release latch **(1)** to release the battery.
3. Pivot the battery **(2)** upward and remove it from the computer **(3)**.



To insert the battery, insert the rear edge of the battery into the battery bay and pivot the front edge downward until the battery is seated. The battery release latch automatically locks the battery into place.

Hard drive

 **NOTE:** All hard drive spare part kits include a hard drive bracket.

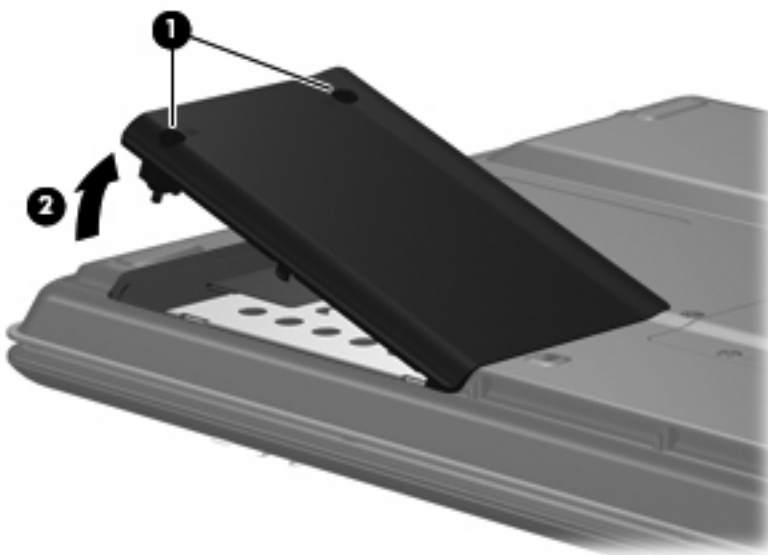
| Description | Spare part number |
|------------------|-------------------|
| 160-GB, 5400-rpm | 454925-001 |
| 120-GB, 5400-rpm | 454924-001 |
| 80-GB, 5400-rpm | 454923-001 |

Before removing the hard drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).

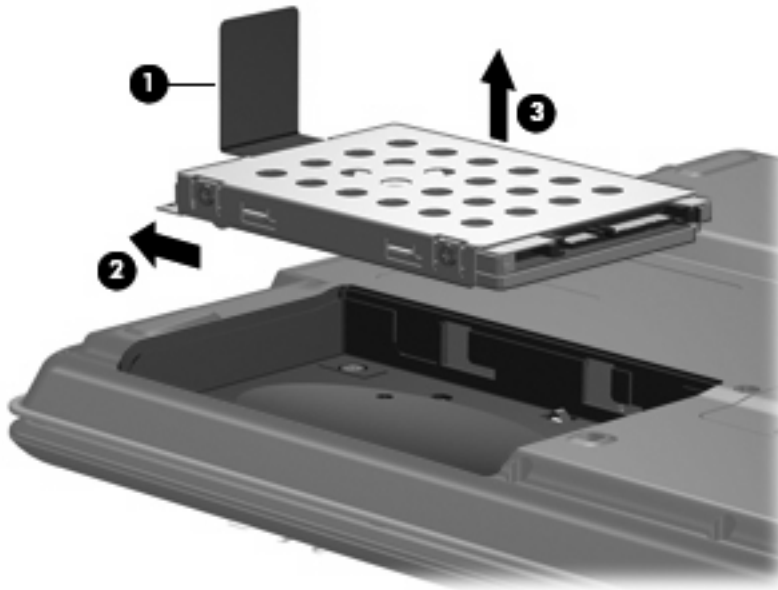
Remove the hard drive:

1. Position the computer with the front toward you.
2. Loosen the two Phillips PM2.0×5.0 captive screws **(1)** that secure the hard drive bay cover to the computer.
3. Lift the left side of the hard drive bay cover **(2)**, swing it up and to the right, and remove the cover. The hard drive bay cover is included in the Plastics Kit, spare part number 454937-001.

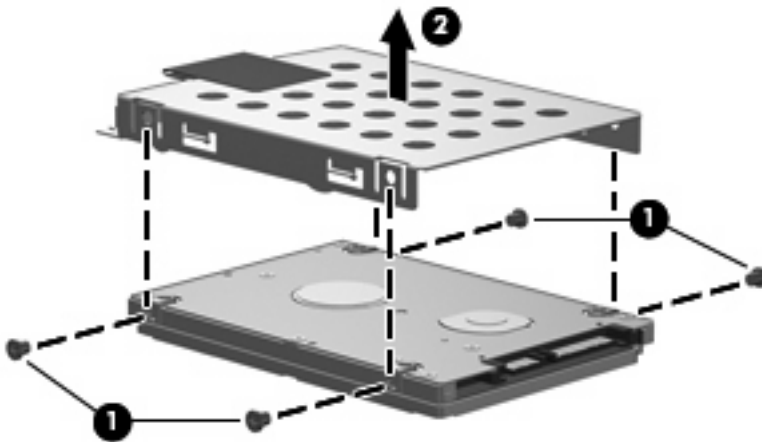


4. Use the Mylar tab **(1)** to slide the hard drive **(2)** to the left until it disconnects from the system board.

5. Remove the hard drive **(3)** from the hard drive bay.



6. Remove the hard drive from the hard drive bay.
7. If it is necessary to replace the hard drive bracket, remove the four Phillips PM3.0×3.0 screws **(1)** that secure the hard drive bracket to the hard drive.
8. Lift the bracket **(2)** straight up to remove it from the hard drive.



Reverse this procedure to reassemble and install the hard drive.

Memory module

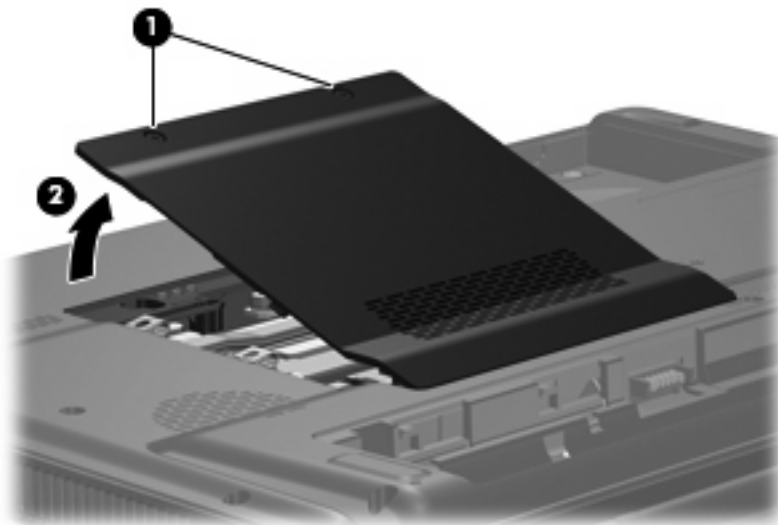
| Description | Spare part number |
|-----------------------------------|-------------------|
| 1024-MB (667-MHz, PC2-5300, DDR2) | 454922-001 |
| 512-MB (667-MHz, PC2-5300, DDR2) | 454920-001 |
| 256-MB (667-MHz, PC2-5300, DDR2) | 454921-001 |

Before removing the memory module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).


Remove the memory module:

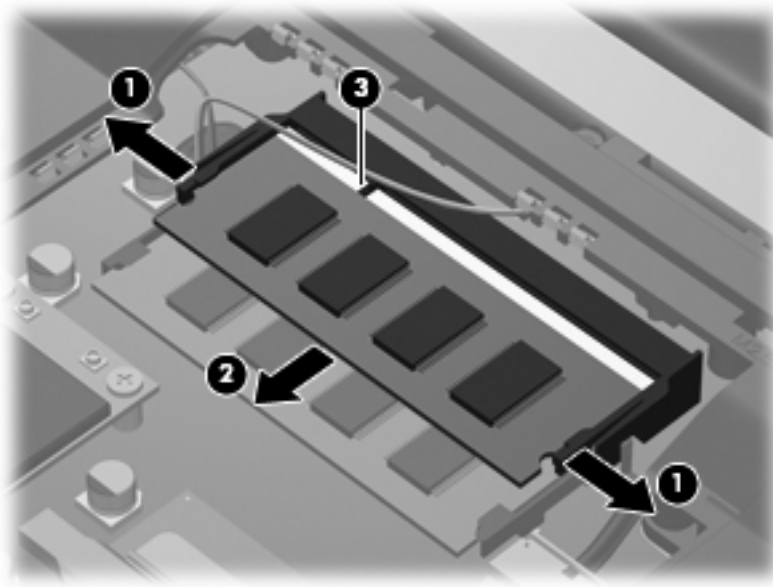
1. Loosen the two Phillips PM2.0×5.0 captive screws **(1)** that secure the memory/wireless module compartment cover to the computer.
2. Lift the rear edge of the cover **(2)**, swing it up and forward, and remove the cover. The memory/wireless module compartment cover is included in the Plastics Kit, spare part number 454937-001.



3. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the computer.)

4. Remove the module **(2)** by pulling it away from the slot at an angle.

 **NOTE:** Memory modules are designed with a notch **(3)** to prevent incorrect installation into the memory module slot.



Reverse this procedure to install a memory module.

WLAN module


| Description | Spare part number |
|--|-------------------|
| Broadcom 802.11a/b/g WLAN modules: | |
| <ul style="list-style-type: none"> For use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam | 441075-001 |
| <ul style="list-style-type: none"> For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan | 441075-002 |
| <ul style="list-style-type: none"> For use in Japan | 441075-291 |
| Intel 802.11a/b/g WLAN modules: | |
| <ul style="list-style-type: none"> For use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam | 451861-001 |
| <ul style="list-style-type: none"> For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan | 451861-002 |
| <ul style="list-style-type: none"> For use in Ecuador, Haiti, Honduras, Pakistan, the People's Republic of China, Peru, Qatar, South Korea, Uruguay, and Venezuela | 451861-003 |
| <ul style="list-style-type: none"> For use in Japan | 451861-291 |
| Broadcom 802.11b/g WLAN modules: | |
| <ul style="list-style-type: none"> For use in Antigua and Barbuda, Argentina, Australia, the Bahamas, Barbados, Brunei, Canada, Chile, the Dominican Republic, Guam, Guatemala, Hong Kong, India, Indonesia, Malaysia, Mexico, New Zealand, Panama, Paraguay, Saudi Arabia, Taiwan, the United States, and Vietnam | 441090-001 |
| <ul style="list-style-type: none"> For use in Aruba, Austria, Azerbaijan, Bahrain, Belgium, Bermuda, Brazil, Bulgaria, the Cayman Islands, Colombia, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Jordan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Oman, the Philippines, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, the United Kingdom, and Uzbekistan | 441090-002 |
| <ul style="list-style-type: none"> For use in Japan | 441090-291 |
| 802.11b/g WLAN module for use in Thailand | 451861-004 |

Before removing the WLAN module, follow these steps:


1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the hard drive bay cover (see [Hard drive on page 38](#)).

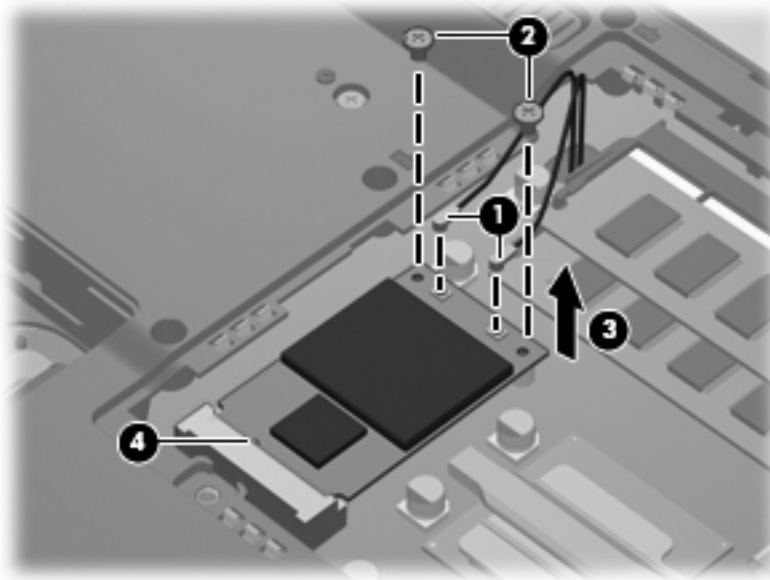
Remove the WLAN module:

1. Position the computer with the front toward you.
2. Disconnect the two WLAN antenna cables **(1)** from the WLAN module.

 **NOTE:** The black WLAN antenna cable is connected to the WLAN module “Main” terminal. The white WLAN antenna cable is connected to the WLAN module “Aux” terminal.


3. Remove the two Phillips PM2.0×4.0 screws **(2)** that secure the WLAN module to the computer. (The edge of the module opposite the slot rises away from the computer.)
4. Remove the WLAN module **(3)** by pulling it away from the slot at an angle.

 **NOTE:** WLAN modules are designed with a notch **(4)** to prevent incorrect installation into the WLAN module slot.



Reverse this procedure to install a WLAN module.

Optical drive

 **NOTE:** All optical drive spare part kits include an optical drive bezel.

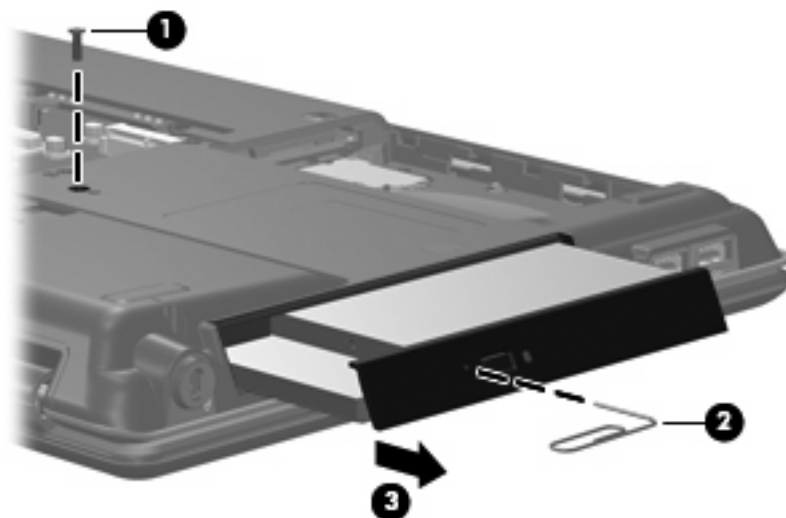
| Description | Spare part number |
|--|-------------------|
| DVD±RW and CD-RW Super Multi Double-Layer Combo Drive with LightScribe | 454929-001 |
| DVD±RW and CD-RW Super Multi Double-Layer Combo Drive | 454928-001 |
| DVD/CD-RW Combo Drive | 454927-001 |

Before removing the optical drive, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).

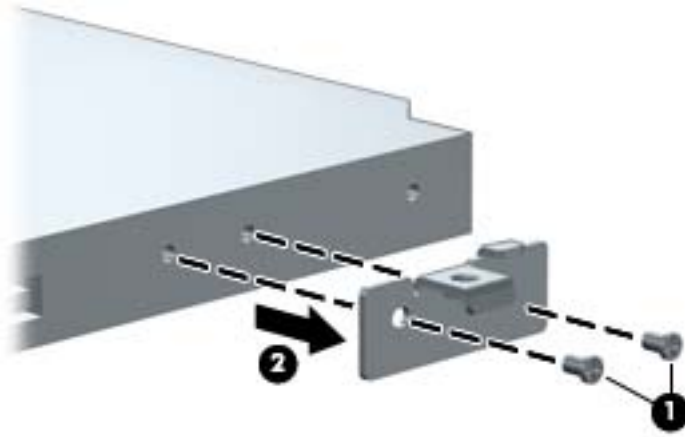
Remove the optical drive:

1. Position the computer with right side toward you.
2. Remove the Phillips PM2.5×9.0 screw **(1)** that secures the optical drive to the computer.
3. Insert a thin tool, such as a paper clip **(2)**, into the release access. (The optical drive media tray is partially ejected from the optical drive.)
4. Use the media tray frame to remove the optical drive **(3)**.



5. If it is necessary to replace the optical drive bracket, position the optical drive with the optical drive bracket toward you.

6. Remove the two Phillips PM2.0x3.0 screws **(1)** that secure the optical drive bracket to the optical drive.
7. Remove the optical drive bracket **(2)**.



Reverse the above procedure to reassemble and install the optical drive.

Keyboard

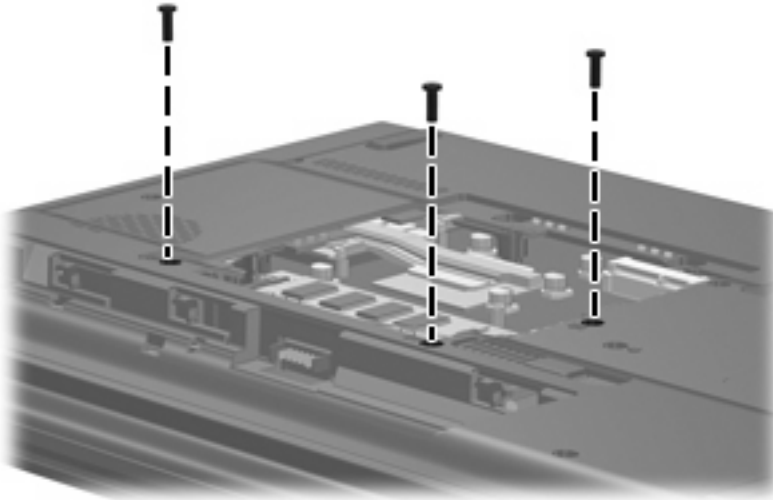
| For use in: | Spare part number | For use in: | Spare part number |
|--------------------------------------|-------------------|--------------------|-------------------|
| Belgium | 454954-A41 | Portugal | 454954-131 |
| Brazil | 454954-201 | Russia | 454954-251 |
| Denmark, Finland, Norway, and Sweden | 454954-DH1 | Saudi Arabia | 454954-171 |
| France | 454954-051 | South Korea | 454954-AD1 |
| French Canada | 454954-121 | Spain | 454954-071 |
| Germany | 454954-041 | Switzerland | 454954-BG1 |
| Greece | 454954-151 | Taiwan | 454954-AB1 |
| Italy | 454954-061 | Thailand | 454954-281 |
| Japan | 454954-291 | Turkey | 454954-141 |
| Latin America | 454954-161 | The United Kingdom | 454954-031 |
| The Netherlands and Europe | 454954-B31 | The United States | 454954-001 |

Before removing the keyboard, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).

Remove the keyboard:

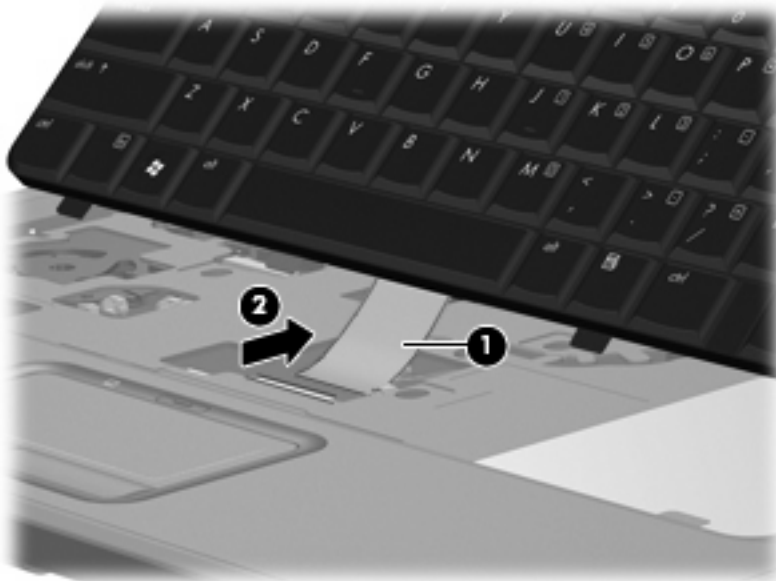
1. Remove the three Phillips PM2.5×9.0 screws that secure the keyboard to the computer.



2. Turn the computer right-side up, with the front toward you.
3. Open the computer as far as possible.
4. Lift the rear edge of the keyboard **(1)** until it rests at an angle.
5. Release the keyboard **(2)** by sliding it back until it rests on the display assembly.



6. Release the zero insertion force (ZIF) connector to which the keyboard cable **(1)** is attached and disconnect the cable **(2)** from the system board.



7. Remove the keyboard.

Reverse this procedure to install the keyboard.

Switch cover

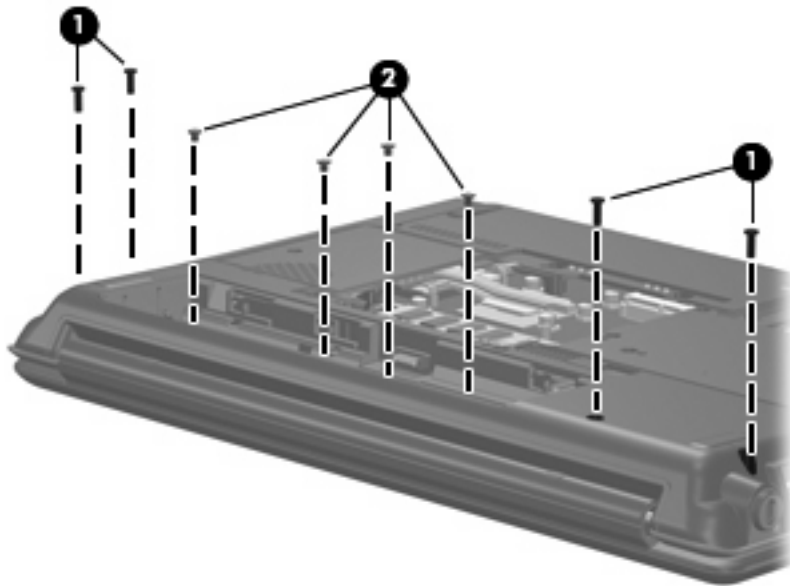
| Description | Spare part number |
|--|-------------------|
| Switch cover (includes caps lock LED board and cable, power button board and cable, and wireless button board and cable) | 454940-001 |

Before removing the switch cover, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the keyboard (see [Keyboard on page 46](#)).

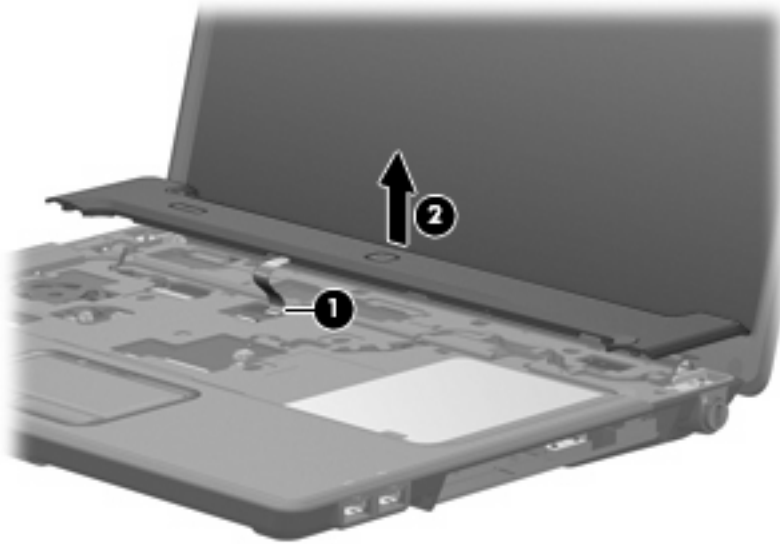
Remove the switch cover:

1. Turn the computer upside down, with the rear panel toward you.
2. Remove the four Phillips PM2.5×9.0 screws **(1)** and the four black Phillips PM2.5×4.0 screws **(2)** that secure the switch cover to the computer.



3. Turn the computer right-side up, with the front toward you.
4. Open the computer as far as possible.
5. Release the ZIF connector to which the power button board cable **(1)** is connected and disconnect the cable from the system board.

6. Remove the switch cover **(2)**.



Reverse this procedure to install the switch cover.

Display assembly

| Description | Spare part number |
|---|-------------------|
| 15.4-inch, WSXGA+BrightView display assembly for use only with HP G7000 computer models | 454932-001 |
| 15.4-inch, WSXGA+BrightView display assembly for use only with Compaq Presario C700 computer models | 454934-001 |

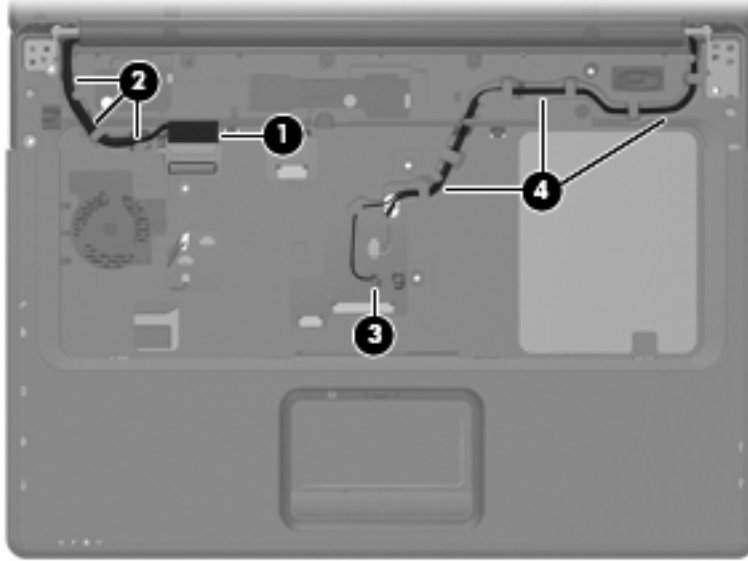
Before removing the display assembly, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Disconnect the wireless antenna cables from the WLAN module (see [WLAN module on page 42](#)).
6. Remove the keyboard (see [Keyboard on page 46](#)).
7. Remove the switch cover (see [Switch cover on page 49](#)).

Remove the display assembly:

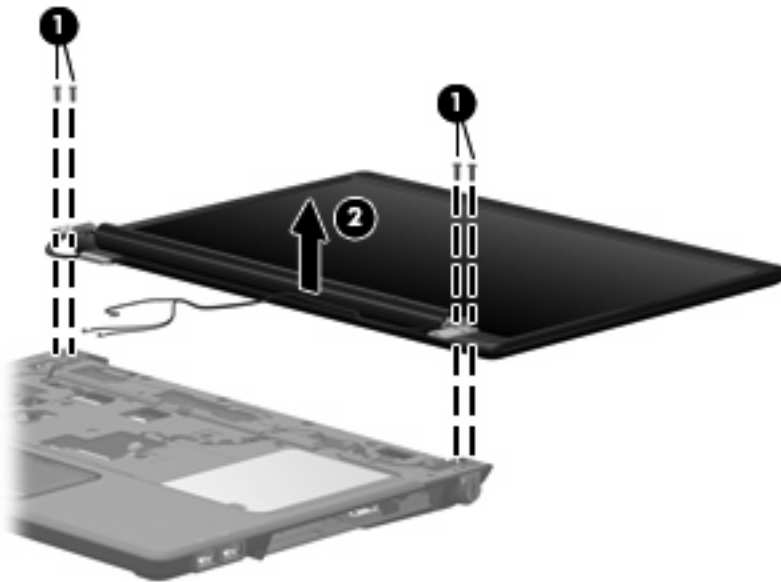
1. Disconnect the display panel cable **(1)** from the system board and remove the cable from the clips **(2)** and routing channel built into the top cover.
2. Disconnect the microphone cable **(3)** from the system board .

3. Remove the microphone cable and the WLAN antenna cables from the clips **(4)** and routing channel built into the top cover.




△ **CAUTION:** The display assembly will be unsupported when the following screws are removed. To prevent damage to the display assembly, support it before removing the screws.

4. Remove the four black Phillips PM2.5×9.0 screws **(1)** that secure the display assembly to the computer.
5. Remove the display assembly **(2)**.



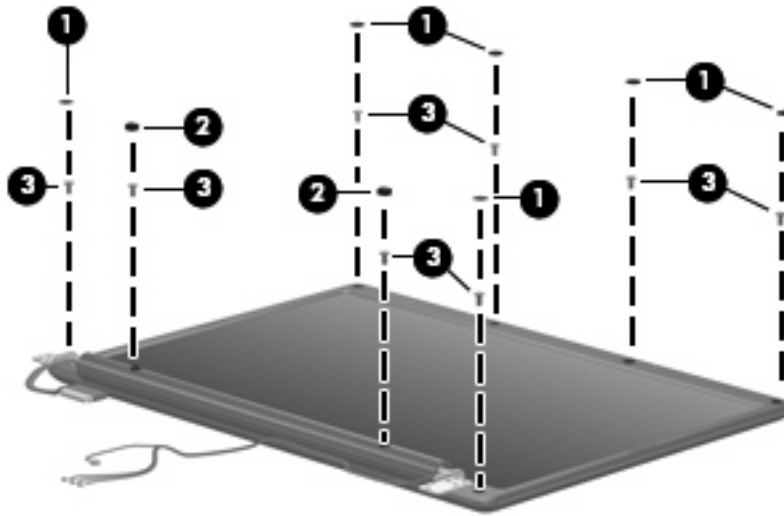
6. If it is necessary to replace any of the display assembly internal components, remove the following screw covers and screws. The display rubber screw covers are included in the Display Rubber Kit, spare part number 454917-001.

(1) Six rubber screw covers on the display bezel top edge and bottom edge corners. The rubber screw covers are available in the Display Rubber Kit, spare part number 454917-001.

 **NOTE:** There are two different sizes of display bezel rubber screw covers. The thicker covers **(2)** must be installed in the bottom center screw holes.

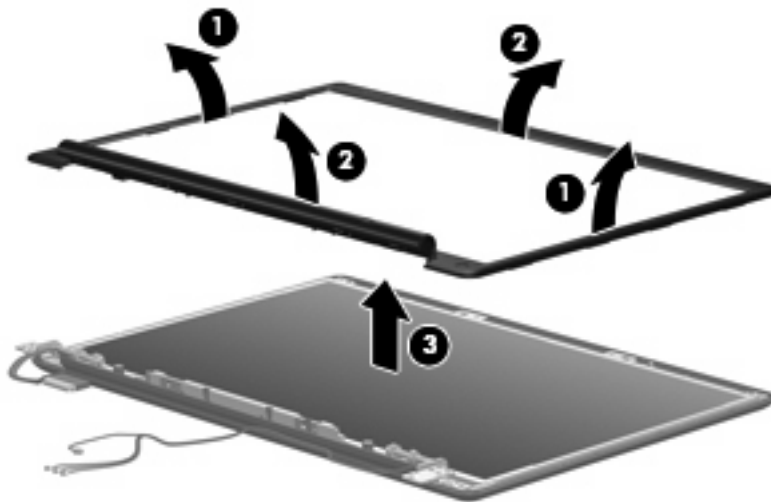
(2) Two rubber screw covers on the display bezel bottom edge.

(3) Eight Phillips PM2.5×7.0 screws.



7. Flex the inside edges of the left and right sides **(1)** and the top and bottom sides **(2)** of the display bezel until the bezel disengages from the display enclosure.

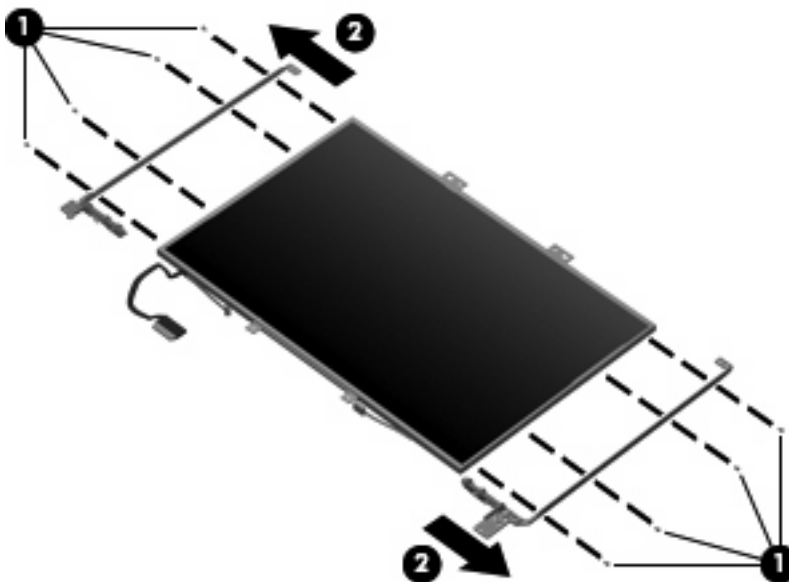
8. Remove the display bezel **(3)**. The display bezel is available using spare part numbers 454909-001 (HP G7000 computer models) and 454910-001 (for use only with Compaq Presario C700 computer models).



9. If it is necessary to replace the display inverter, release the inverter **(1)** as far as the display panel cable and the backlight cable will allow.
10. Disconnect the display panel cable **(2)** and the backlight cable **(3)** from the display inverter.

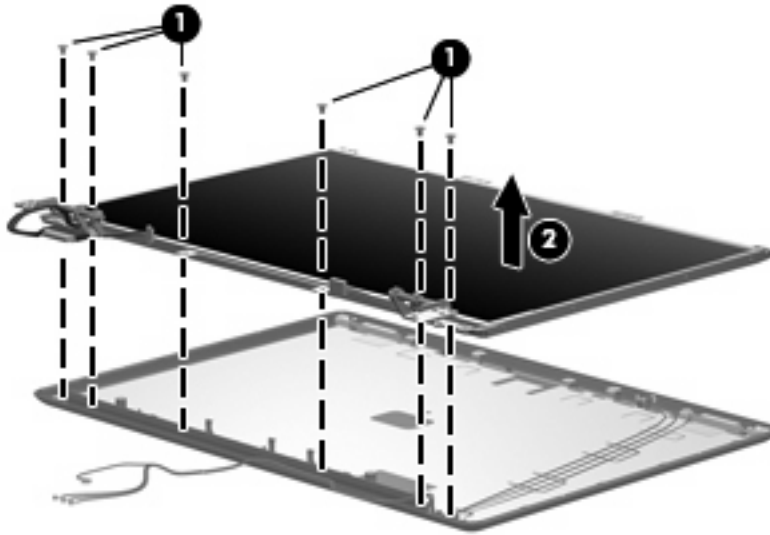


11. Remove the inverter. The display inverter is available using spare part number 454915-001.
12. If it is necessary to replace the display hinges, remove the four Phillips PM2.0x4.0 screws **(1)** that secure each hinge to the display panel.
13. Remove the display hinges **(2)** from the display panel. The display hinges are available using spare part number 454916-001.

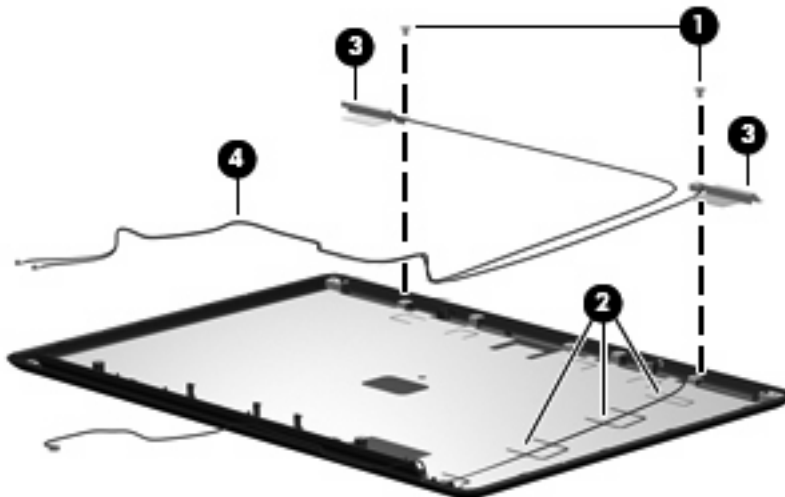


14. If it is necessary to replace the display panel, remove the six Phillips PM2.5x4.0 screws **(1)** that secure the panel to the display enclosure.

15. Remove the display panel **(2)** from the display enclosure. The display panel is available using the spare part number 454323-001.

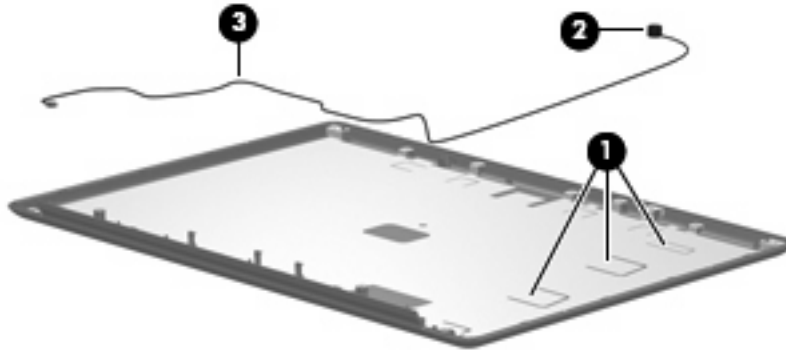


16. If it is necessary to replace the wireless antenna transceivers and cables, remove the two Phillips PM2.5×4.0 screws **(1)** that secure the transceivers to the display enclosure.
17. Remove the wireless antenna cables from the clips **(2)** built into the display enclosure.
18. Detach the wireless antenna transceivers **(3)** from the display enclosure.
19. Remove the wireless antenna transceivers and cables **(4)** from the display enclosure. The wireless antenna transceivers and cables are available in the Display Cable Kit, spare part number 454919-001.



20. If it is necessary to replace the microphone receiver and cable, release the retention tabs **(1)** built into the display enclosure that secure the microphone cable to the display enclosure.
21. Remove the microphone receiver **(2)** from the clip in the display enclosure.

22. Remove the microphone cable **(3)** from the display enclosure. The microphone receiver and cable are included in the Display Cable Kit, spare part number 454919-001.



Reverse this procedure to reassemble and install the display assembly.

Top cover

| Description | Spare part number |
|---|-------------------|
| Top cover (includes TouchPad and cable) | 454936-001 |

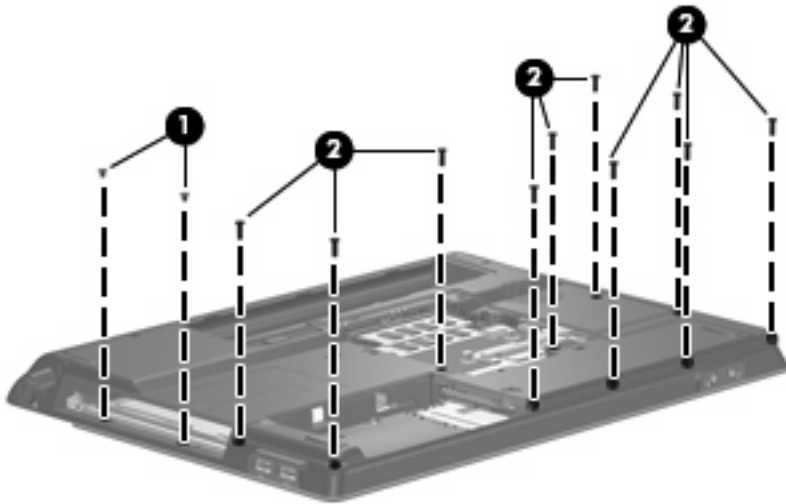
Before removing the top cover, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))

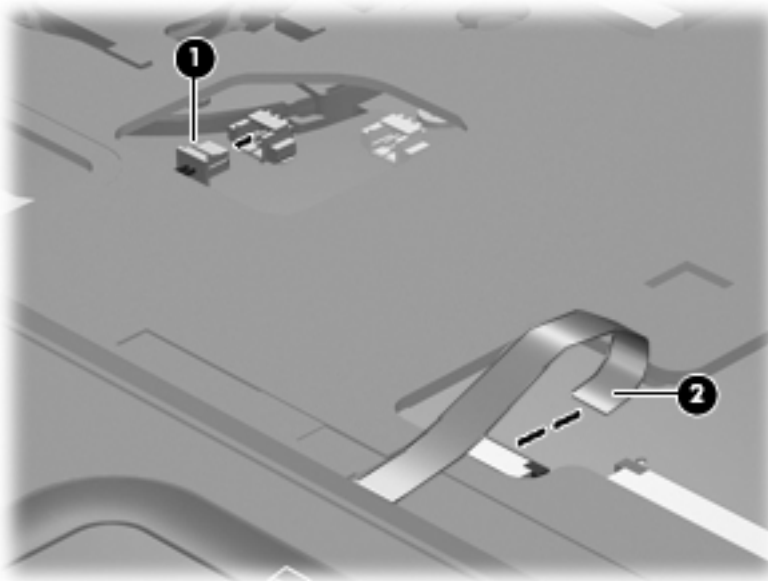
Remove the top cover:

1. Turn the computer upside down, with the front toward you.

2. Remove the two Phillips PM2.5×4.0 screws **(1)** and the ten Phillips PM2.5×9.0 screws **(2)** that secure the top cover to the computer.

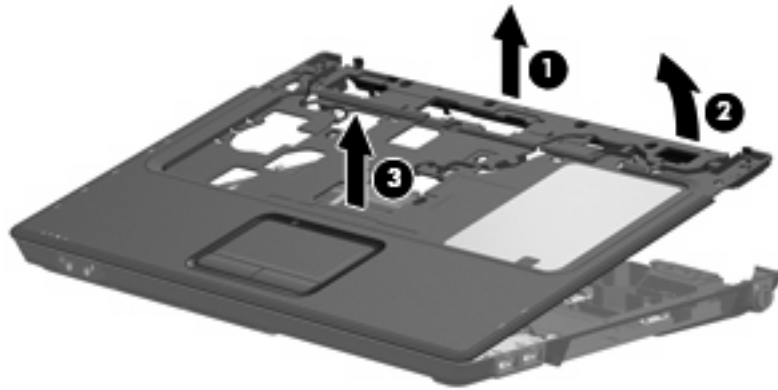


3. Turn the computer right-side up, with the front toward you.
4. Disconnect the caps lock LED board cable **(1)** from the system board.
5. Release the ZIF connector to which the TouchPad cable is connected and disconnect the cable **(2)** from on the system board.



6. Lift the rear edge of the top cover **(1)** and swing it **(2)** up and forward until it rests at an angle.

7. Remove the top cover **(3)**.



Reverse this procedure to install the top cover.

Caps lock LED board

| Description | Spare part number |
|--------------------------------------|-------------------|
| Caps lock LED board (includes cable) | 454948-001 |

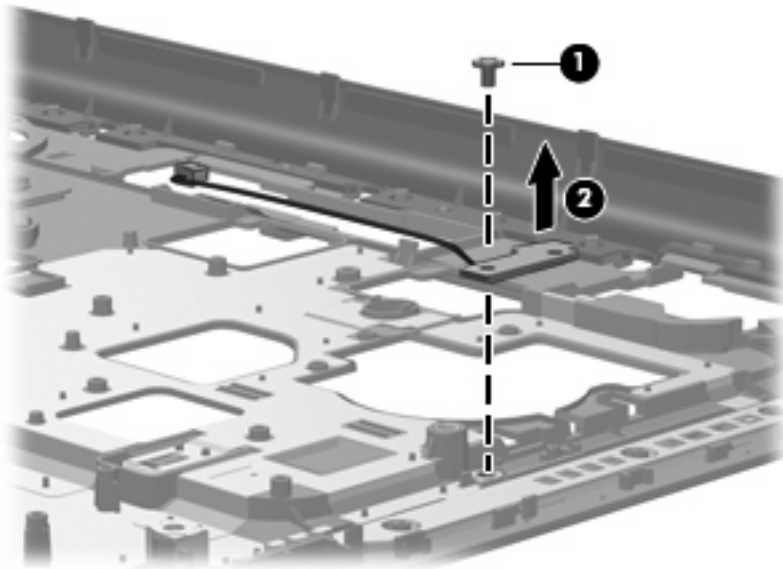
Before removing the caps lock LED board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))

Remove the caps lock LED board:

1. Turn the top cover upside down, with the front toward you.
2. Remove the Phillips PM2.0×4.0 screw **(1)** that secures the caps lock LED board to the top cover.

3. Remove the caps lock LED board **(2)** from the top cover.



Reverse the above procedure to install the caps lock LED board.

USB board

| Description | Spare part number |
|--------------------------------------|-------------------|
| USB board (includes USB board cable) | 454941-001 |

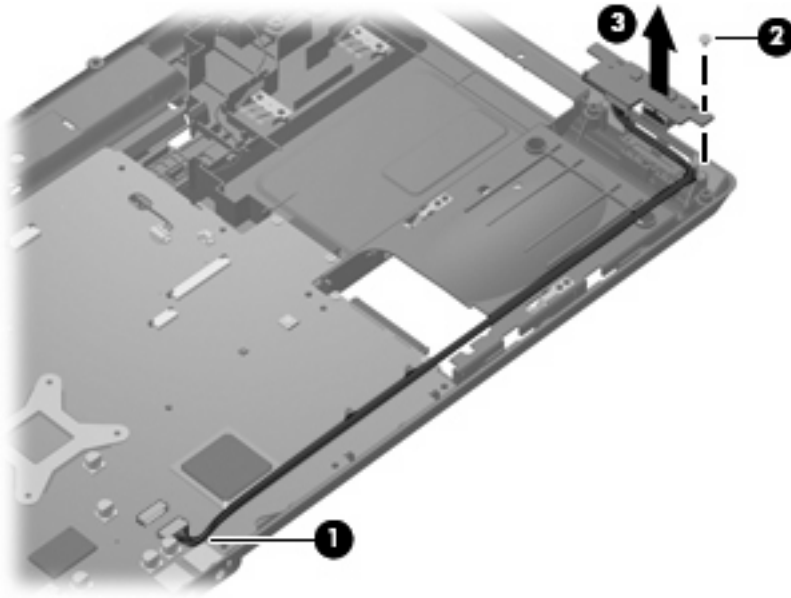
Before removing the USB board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))

Remove the USB board:

1. Disconnect the USB board cable **(1)** from the system board.
2. Remove the Phillips PM2.5×4.0 screw **(2)** that secures the USB board to the base enclosure.


3. Remove the USB board **(3)** from the base enclosure.



Reverse this procedure to install the USB board.

Fan

| Description | Spare part number |
|-------------|-------------------|
| Fan | 454944-001 |

 **NOTE:** To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left side of the computer. The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

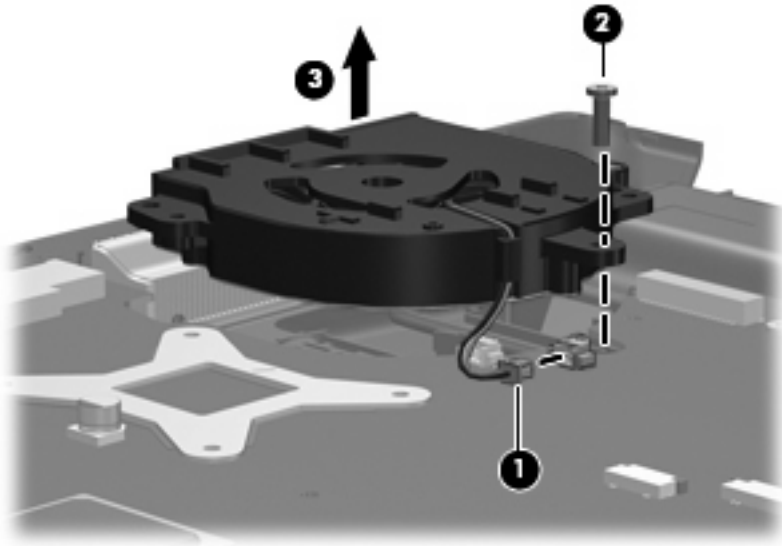
Before removing the fan, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))

Remove the fan:

1. Disconnect the fan cable **(1)** from the system board.
2. Remove the Phillips PM2.0×9.0 screw **(2)** that secures the fan to the base enclosure.

3. Remove the fan **(3)**.



Reverse this procedure to install the fan.

Speakers

| Description | Spare part number |
|-------------|-------------------|
| Speakers | 454946-001 |

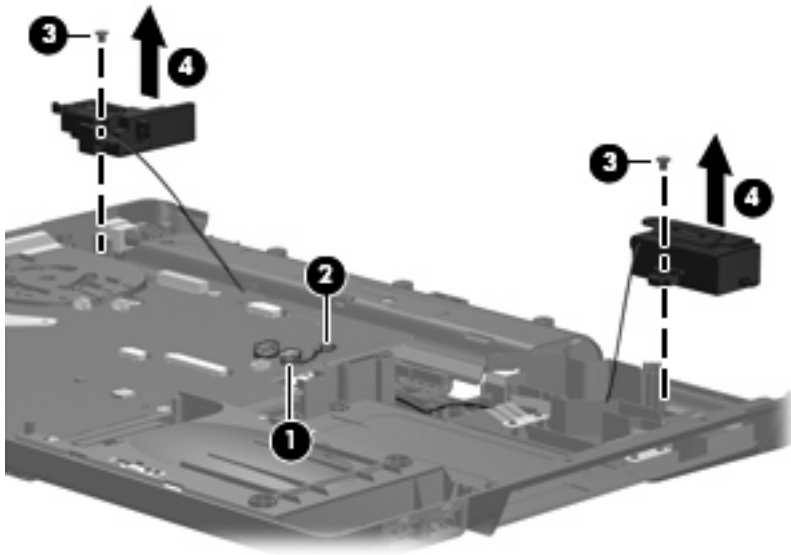
Before removing the speakers, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))

Remove the speakers:


1. Disconnect the speaker cable **(1)** from the system board.
2. Remove the speaker cables **(2)** from the clip in the system board and the clips built into the base enclosure.
3. Remove the two Phillips PM2.5×4.0 screws **(3)** that secure the speakers to the base enclosure.

4. Remove the speakers **(4)** from the base enclosure.



Reverse this procedure to install the speakers.

System board

 **NOTE:** All system board spare part kits include replacement thermal material.

| Description | Spare part number |
|---|-------------------|
| For use only with computer models equipped with Intel Core 2 Duo and Core Duo processors and a card reader board | 453494-001 |
| For use only with computer models equipped with Intel Core 2 Duo and Core Duo processors, but not a card reader board | 454882-001 |
| For use only with computer models equipped with Intel Celeron M processors and a card reader board | 453495-001 |
| For use only with computer models equipped with Intel Celeron M processors, but not a card reader board | 454883-001 |

Before removing the system board, follow these steps:

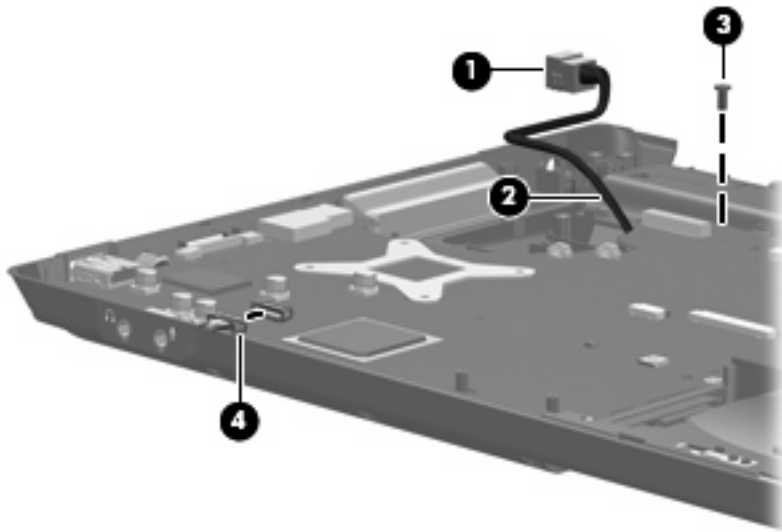
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))

When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

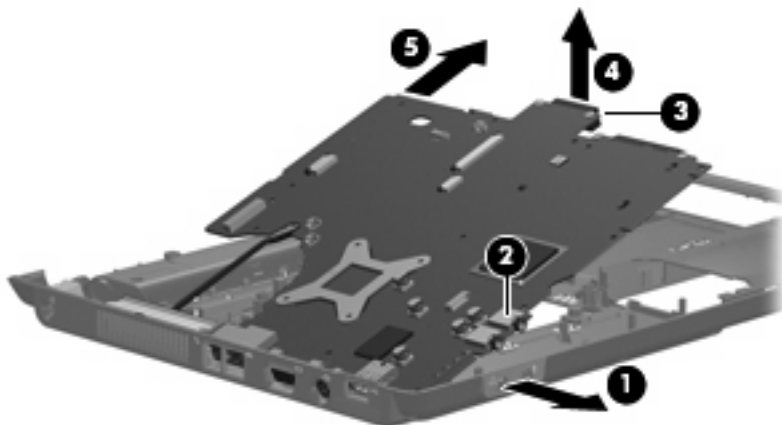
- Memory modules (see [Memory module on page 40](#))
- WLAN module (see [WLAN module on page 42](#))
- RTC battery (see [RTC battery on page 68](#))
- Card reader board (see [Card reader board on page 70](#))
- Heat sink (see [Heat sink on page 72](#))
- Processor (see [Processor on page 74](#))
- Power connector cable (see [Power connector cable on page 76](#))

Remove the system board:

1. Remove the power connector **(1)** from the clip built into the base enclosure.
2. Remove the power connector cable **(2)** from the routing channel and clips built into the base enclosure.
3. Remove the black Phillips PM2.5×4.0 screw **(3)** that secures the system board to the base enclosure.
4. Disconnect the USB board cable **(4)** from the system board.




5. Flex the front edge of the base enclosure **(1)** outward to provide clearance for the audio connectors **(2)**.
6. Use the optical drive connector **(3)** to lift the right side of the system board **(4)** until it rests at an angle.
7. Remove the system board **(5)** by pulling it away from the base enclosure at an angle.



Reverse the preceding procedure to install the system board.

RTC battery

 **NOTE:** Removing the RTC battery and leaving it uninstalled for 5 or more minutes causes all passwords and CMOS settings to be cleared.

| Description | Spare part number |
|--|-------------------|
| RTC battery (includes double-sided tape) | 454947-001 |


Before removing the RTC battery, follow these steps:

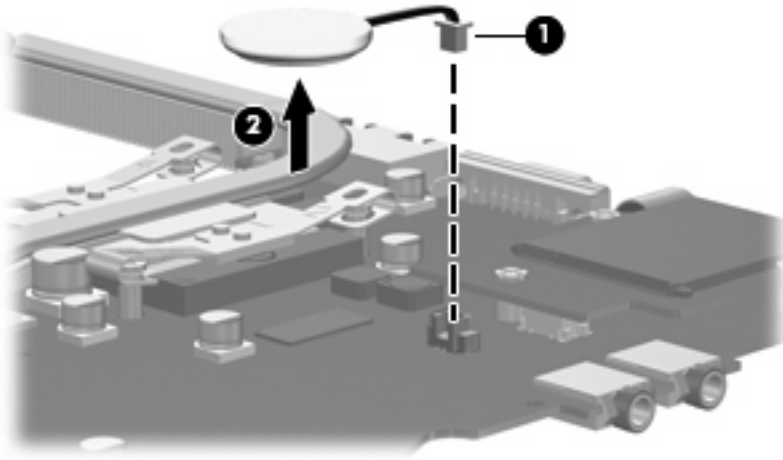
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))
 - g. System board (see [System board on page 66](#))

Remove the RTC battery:

1. Turn the system board upside down, with the audio connectors toward you.
2. Disconnect the RTC battery cable **(1)** from the system board.

3. Remove the RTC battery (2).

 **NOTE:** The RTC battery is attached to the system board with double-sided tape.



Reverse this procedure to install the RTC battery.

Card reader board

| Description | Spare part number |
|-------------------|-------------------|
| Card reader board | 454949-001 |

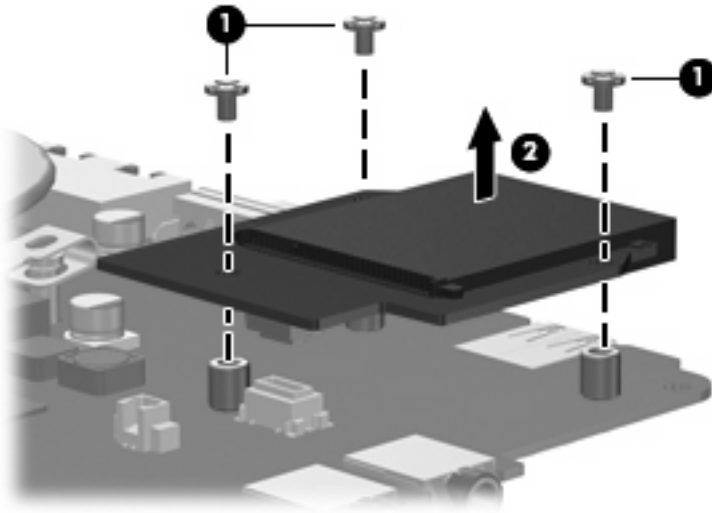
Before removing the card reader board, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))
 - g. System board (see [System board on page 66](#))

Remove the card reader board:

1. Turn the system board upside down, with the audio connectors toward you.
2. Remove the three Phillips PM2.0×4.0 screws **(1)** that secure the card reader board to the system board.

3. Lift the card reader board **(2)** straight up to disconnect it from the system board.



4. Remove the card reader board.

Reverse the above procedure to install the card reader board.

Heat sink

| Description | Spare part number |
|---------------------------------------|-------------------|
| Heat sink (includes thermal material) | 454943-001 |

Before removing the heat sink, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))
 - g. System board (see [System board on page 66](#))

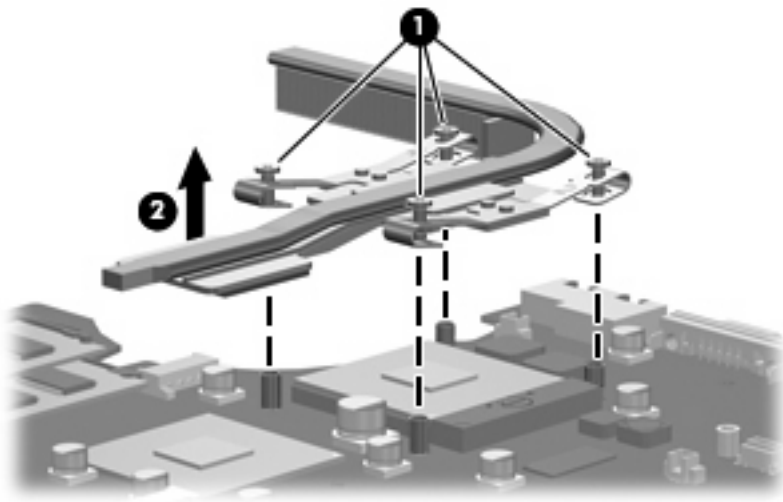
Remove the heat sink:


1. Turn the system board upside down, with the audio connectors toward you.
2. Loosen the four Phillips PM2.5×6.0 captive screws **(1)** that secure the heat sink to the system board.

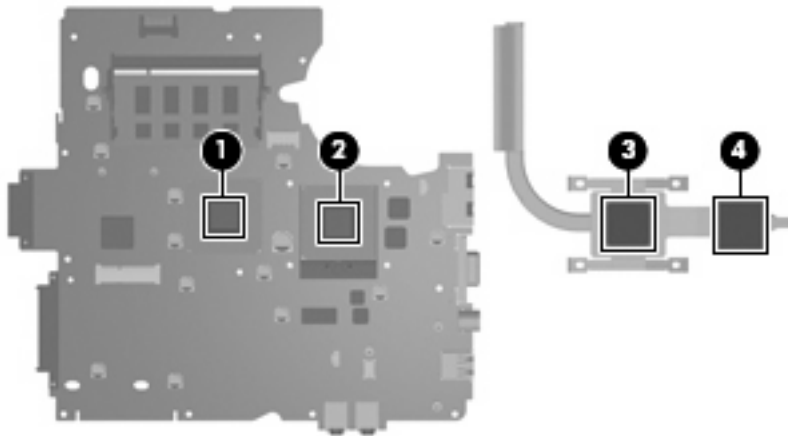


NOTE: Due to the adhesive quality of the thermal material located between the heat sink and system board components, it may be necessary to move the heat sink from side to side to detach the assembly.

3. Remove the heat sink **(2)**.



 **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the system board **(1)** and **(2)** and the heat sink **(3)** and **(4)** each time the heat sink is removed. Thermal pads and thermal paste must be installed on all surfaces before the heat sink is reinstalled. Thermal pads and thermal paste are included with all heat sink, system board, and processor spare part kits.



Reverse this procedure to install the heat sink.

Processor

 **NOTE:** All processor spare part kits include replacement thermal material.

| Description | Spare part number |
|--|-------------------|
| Intel Core 2 Duo T7250 (2.00-GHz, 2 MB of L2 cache, 800-MHz FSB) | 454320-001 |
| Intel Core 2 Duo T7100 (1.80-GHz, 2 MB of L2 cache, 800-MHz FSB) | 448149-001 |
| Intel Core Duo T5450 (1.67-GHz, 2 MB of L2 cache, 667-MHz FSB) | 451597-001 |
| Intel Core Duo T5250 (1.50-GHz, 2 MB of L2 cache, 667-MHz FSB) | 453948-001 |
| Intel Core Duo T2330 (1.50-GHz, 1 MB of L2 cache, 667-MHz FSB) | 455944-001 |
| Intel Core Duo T2310 (1.50-GHz, 1 MB of L2 cache, 667-MHz FSB) | 455943-001 |
| Intel Celeron M 550 (2.00-GHz, 1 MB of L2 cache, 533-MHz FSB) | 454322-001 |
| Intel Celeron M 540 (1.86-GHz, 1 MB of L2 cache, 533-MHz FSB) | 454321-001 |
| Intel Celeron M 530 (1.73-GHz, 1 MB of L2 cache, 533-MHz FSB) | 455437-001 |


Before removing the processor, follow these steps:

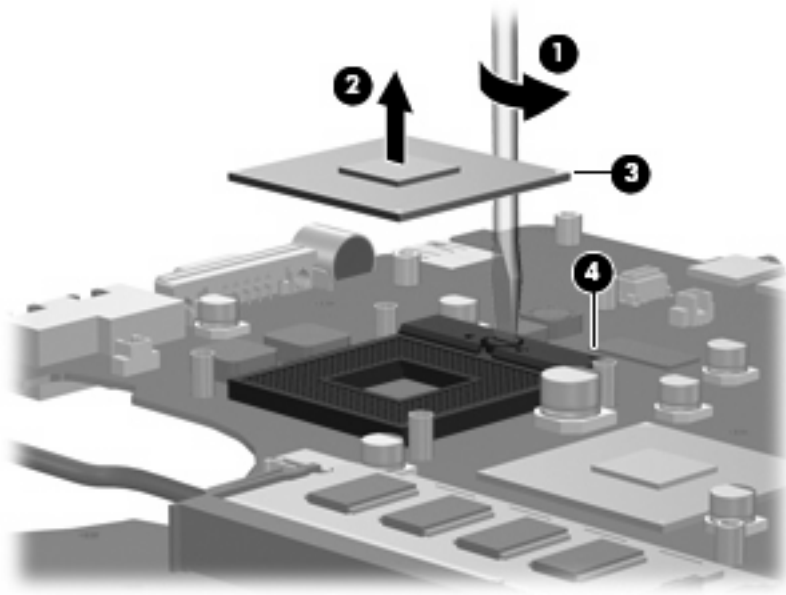
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))
 - g. System board (see [System board on page 66](#))

Remove the processor:

1. Turn the system board upside down, with the audio connectors toward you.
2. Turn the processor locking screw **(1)** one-half turn counterclockwise until you hear a click.

3. Lift the processor **(2)** straight up and remove it.

 **NOTE:** When you install the processor, the gold triangle **(3)** on the processor must be aligned with the triangle icon **(4)** embossed on the processor slot.



Reverse this procedure to install the processor.

Power connector cable

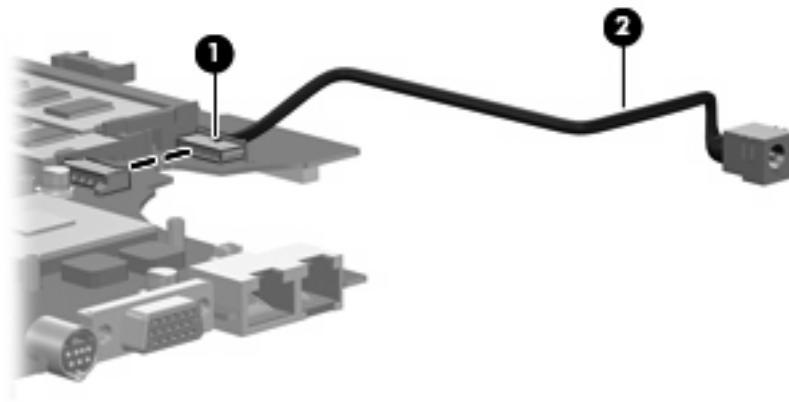
| Description | Spare part number |
|-----------------------|-------------------|
| Power connector cable | 454945-001 |

Before removing the power connector cable, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 37](#)).
5. Remove the following components:
 - a. Hard drive (see [Hard drive on page 38](#))
 - b. Optical drive (see [Optical drive on page 44](#))
 - c. Keyboard (see [Keyboard on page 46](#))
 - d. Switch cover (see [Switch cover on page 49](#))
 - e. Display assembly (see [Display assembly on page 51](#))
 - f. Top cover (see [Top cover on page 56](#))
 - g. System board (see [System board on page 66](#))

Remove the power connector cable:

1. Turn the system board upside down, with the external monitor connector toward you.
2. Disconnect the power connector cable **(1)** from the system board.
3. Remove the power connector cable **(2)**.



Reverse this procedure to install the power connector cable.

5 Setup Utility

⚠ **WARNING!** Only authorized technicians trained by HP must repair this equipment. All troubleshooting and repair procedures are detailed to allow repair at only the subassembly or module level. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or modify any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

Starting the Setup Utility

The Setup Utility is a ROM-based information and customization utility that can be used even when your Windows® operating system is not working or will not load.

📝 **NOTE:** The fingerprint reader (select models only) does not work when accessing the Setup Utility.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start the Setup Utility:

1. Turn on or restart the computer.
2. Before Windows opens and while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen, press **f10**.

Changing the language of the Setup Utility

The following procedure explains how to change the language of the Setup Utility. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is already running, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer, and then press **f10** while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Press **f5** or **f6** (or use the arrow keys) to select a language, and then press **enter** to select a language.
4. When a confirmation prompt with your preference selected is displayed, press **enter** to save your preference.
5. To set your preferences and exit the Setup Utility, press **f10** and then follow the instructions on the screen.

Your preferences go into effect when the computer restarts in Windows.

Navigating and selecting in the Setup Utility

Because the Setup Utility is not Windows-based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a drop-down list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or **f5** or **f6**.
- To select an item, press **enter**.
- To close a text box or return to the menu display, press **esc**.
- To display additional navigation and selection information while the Setup Utility is open, press **f1**.

Displaying system information

The following procedure explains how to display system information in the Setup Utility. If the Setup Utility is not open, begin at step 1. If the Setup Utility is open, begin at step 2.


1. To start the Setup Utility, turn on or restart the computer, and then press **f10** while “Press <F10>to enter setup” is displayed in the lower-left corner of the screen.
2. Access the system information by using the **Main** menu.
3. To exit the Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**. (The computer restarts in Windows.)

Restoring default settings in the Setup Utility

The following procedure explains how to restore the Setup Utility default settings. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is already running, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer, and then press **f10** while “Press <F10>to enter setup” is displayed in the lower-left corner of the screen.
2. Select **Exit > Load Setup Defaults**, and then press **enter**.
3. When the Setup Confirmation is displayed, press **enter** to save your preferences.
4. To set your preferences and exit the Setup Utility, press **f10**, and then follow the instructions on the screen.

The Setup Utility default settings are set when you exit the Setup Utility and go into effect when the computer restarts.

 **NOTE:** Your password, security, and language settings are not changed when you restore the factory default settings.

Using advanced Setup Utility features

This section describes the Setup Utility features recommended for all users. For more information about the Setup Utility features recommended for advanced users only, refer to Help and Support, which is accessible only when the computer is in Windows.

The Setup Utility features available for advanced users include a hard drive self-test, a Network Service Boot, and settings for boot order preferences.

The “<F12> to boot from LAN” message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows is the prompt for a Network Service Boot.

The “Press <ESC> to change boot order” message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows is the prompt to change the boot order.

Closing the Setup Utility

You can close the Setup Utility with or without saving changes.

- To close the Setup Utility and save your changes from the current session, use either of the following procedures:
 - Press **f10**, and then follow the instructions on the screen.
 - or –
 - If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

When you use the **f10** procedure, you are offered an option to return to the Setup Utility. When you use the Exit Saving Changes procedure, the Setup Utility closes when you press **enter**.


- To close the Setup Utility without saving your changes from the current session:

If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

After the Setup Utility closes, the computer restarts in Windows.

Setup Utility menus

The menu tables in this section provide an overview of Setup Utility options.

 **NOTE:** Some of the Setup Utility menu items listed in this section may not be supported by your computer.

Main menu

| Select | To do this |
|--------------------|---|
| System information | <ul style="list-style-type: none">• View and change the system time and date.• View identification information about the computer.• View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only). |

Security menu

| Select | To do this |
|------------------------|---|
| Administrator password | Enter, change, or delete an administrator password. |
| Power-On Password | Enter, change, or delete a power-on password. |

System Configuration menu

| Select | To do this |
|--|---|
| Language Support | Change the Setup Utility language. |
| Enhanced SATA support (select models only) | Enable/disable enhanced SATA mode. |
| Boot Options | Set the following boot options: <ul style="list-style-type: none">• f10 and f12 Delay (sec.)—Set the delay for the f10 and f12 functions of the Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20).• CD-ROM boot—Enable/disable boot from CD-ROM.• Floppy boot—Enable/disable boot from Floppy.• Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter.• Boot Order—Set the boot order for:<ul style="list-style-type: none">◦ USB Floppy◦ ATAPI CD/DVD ROM Drive◦ Hard drive◦ USB Diskette on Key◦ USB Hard drive◦ Network adapter |
| Button Sound (select models only) | Enable/disable the Quick Launch Button tapping sound. |
| Video memory up to (select models only) | Select the amount of video memory. |

Diagnostics menu

| Select | To do this |
|---|--|
| Hard Drive Self Test | Run a comprehensive self-test on the hard drive. NOTE: On models with two hard drives, this menu option is called the Primary Hard Disk Self Test . |
| Secondary Hard Drive Self Test (select models only) | Run a comprehensive self-test on a secondary hard drive. |

6 Specifications

Computer specifications

| | Metric | U.S. |
|---|---|---------------------|
| Dimensions | | |
| Length | 25.7 cm | 10.12 in |
| Width | 35.7 cm | 14.06 in |
| Height (front to rear) | 3.28 to 4.03 cm | 1.29 to 1.59 in |
| Weight (with optical drive, hard drive, and battery) | 2.9 kg | 6.39 lbs |
| Input power | | |
| Operating voltage | 18.5 V dc — 19.0 V dc | |
| Operating current | 3.5 A or 4.74 A | |
| Temperature | | |
| Operating (not writing to optical disc) | 0°C to 35°C | 32°F to 95°F |
| Operating (writing to optical disc) | 5°C to 35°C | 41°F to 95°F |
| Nonoperating | -20°C to 60°C | -4°F to 140°F |
| Relative humidity | | |
| Operating | 10% to 90% | |
| Nonoperating | 5% to 95% | |
| Maximum altitude (unpressurized) | | |
| Operating (14.7 to 10.1 psia) | -15 m to 3,048 m | -50 ft to 10,000 ft |
| Nonoperating (14.7 to 4.4 psia) | -15 m to 12,192 m | -50 ft to 40,000 ft |
| Shock | | |
| Operating | 125 g, 2 ms, half-sine | |
| Nonoperating | 200 g, 2 ms, half-sine | |
| Random vibration | | |
| Operating | 0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate | |

| | Metric | U.S. |
|---|--|------|
| Nonoperating | 1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate | |
| NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures. | | |

15.4-inch, WSXGA, BrightView display specifications

| | Metric | U.S. |
|--------------------------------|--|----------|
| Dimensions | | |
| Height | 20.7 cm | 8.15 in |
| Width | 33.1 cm | 13.03 in |
| Diagonal | 39.1 cm | 15.39 in |
| Number of colors | Up to 16.8 million | |
| Contrast ratio | 200:1 (typical) | |
| Brightness | 180 nits (typical) | |
| Pixel resolution | | |
| Pitch | 0.197 × 0.197 mm | |
| Format | 1680× 1050 | |
| Configuration | RGB vertical stripe | |
| Backlight | Cold cathode fluorescent tube (CCFT) | |
| Character display | 80 × 25 | |
| Total power consumption | 7.0 W | |
| Viewing angle | +/-40° horizontal, +50° vertical (typical) | |

Hard drive specifications

| | 160-GB* | 120-GB* | 80-GB* |
|--|-----------------------------|--------------|--------------|
| Dimensions | | | |
| Height | 9.5 mm | 9.5 mm | 9.5 mm |
| Width | 70 mm | 70 mm | 70 mm |
| Weight | 102 g | 102 g | 102 g |
| Interface type | | | |
| | SATA | SATA | SATA |
| Transfer rate | | | |
| Synchronous (maximum) | 100 MB/sec | 100 MB/sec | 100 MB/sec |
| Security | ATA security | ATA security | ATA security |
| Seek times (typical read, including setting) | | | |
| Single track | 3 ms | 3 ms | 3 ms |
| Average | 13 ms | 13 ms | 13 ms |
| Maximum | 24 ms | 24 ms | 24 ms |
| Logical blocks | | | |
| | 312,581,808 | 237,937,274 | 158,624,849 |
| Disk rotational speed | | | |
| | 5400 rpm | | |
| Operating temperature | | | |
| | 5°C to 55°C (41°F to 131°F) | | |
| NOTE: Certain restrictions and exclusions apply. Consult technical support for details. | | | |
| *1 GB = 1 billion bytes when referring to hard drive storage capacity. Accessible capacity is less. Actual drive specifications may differ slightly. | | | |

DVD±RW and CD-RW Super Multi Double-Layer Combo Drive specifications

| Applicable disc | Read: | Write: |
|-----------------------------|--|---|
| | CD-DA, CD+(E)G, CD-MIDI, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM | CD-R and CD-RW DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM |
| Center hole diameter | 1.5 cm (0.59 in) | |
| Disc diameter | | |
| Standard disc | 12 cm (4.72 in) | |
| Mini disc | 8 cm (3.15 in) | |
| Disc thickness | 1.2 mm (0.047 in) | |
| Track pitch | 0.74 μm | |
| Access time | CD | DVD |
| Random | < 175 ms | < 230 ms |
| Full stroke | < 285 ms | < 335 ms |
| Audio output level | Audio-out, 0.7 Vrms | |
| Cache buffer | 2 MB | |
| Data transfer rate | | |
| 24X CD-ROM | 3,600 KB/sec | |
| 8X DVD | 10,800 KB/sec | |
| 24X CD-R | 3,600 KB/sec | |
| 16X CD-RW | 2,400 KB/sec | |
| 8X DVD+R | 10,800 KB/sec | |
| 4X DVD+RW | 5,400 KB/sec | |
| 8X DVD-R | 10,800 KB/sec | |
| 4X DVD-RW | 5,400 KB/sec | |
| 2.4X DVD+R(9) | 2,700 KB/sec | |
| 5X DVD-RAM | 6,750 KB/sec | |
| Transfer mode | Multiword DMA Mode | |
| Startup time | < 15 seconds | |
| Stop time | < 6 seconds | |

System DMA specifications

| Hardware DMA | System function |
|--------------|---------------------------------|
| DMA0 | Not applicable |
| DMA1* | Not applicable |
| DMA2* | Not applicable |
| DMA3 | Not applicable |
| DMA4 | Direct memory access controller |
| DMA5* | Available for PC Card |
| DMA6 | Not assigned |
| DMA7 | Not assigned |

*PC Card controller can use DMA 1, 2, or 5.

System memory map specifications

| Size | Memory address | System function |
|--------|-------------------|------------------------------|
| 640 KB | 00000000-0009FFFF | Base memory |
| 128 KB | 000A0000-000BFFFF | Video memory |
| 48 KB | 000C0000-000CBFFF | Video BIOS |
| 160 KB | 000C8000-000E7FFF | Unused |
| 64 KB | 000E8000-000FFFFF | System BIOS |
| 15 MB | 00100000-00FFFFFF | Extended memory |
| 58 MB | 04800000-07FFFFFF | Super extended memory |
| 58 MB | 04800000-07FFFFFF | Unused |
| 2 MB | 08000000-080FFFFF | Video memory (direct access) |
| 4 GB | 08200000-FFFFFFF | Unused |
| 64 KB | FFFF0000-FFFFFFFF | System BIOS |

System interrupt specifications

| Hardware IRQ | System function |
|--------------|--|
| IRQ0 | System timer |
| IRQ1 | Standard 101-/102-Key or Microsoft® Natural Keyboard |
| IRQ2 | Cascaded |
| IRQ3 | Intel 82801DB/DBM USB2 Enhanced Host Controller—24CD |
| IRQ4 | COM1 |
| IRQ5* | Conexant AC—Link Audio Intel 82801DB/DBM SMBus Controller—24C3 Data Fax Modem with SmartCP |
| IRQ6 | Diskette drive |
| IRQ7* | Parallel port |
| IRQ8 | System CMOS/real-time clock |
| IRQ9* | Microsoft ACPI-compliant system |
| IRQ10* | Intel USB UHCI controller—24C2 Intel 82852/82855 GM/GME Graphic Controller Realtek RTL8139 Family PCI Fast Ethernet Controller |
| IRQ11 | Intel USB EHCI controller—24CD Intel USB UHCI controller—24C4 Intel USB UHCI controller—24C7 Intel Pro/Wireless 2200BG TI OHCI 1394 host controller TI PCI1410 CardBus controller |
| IRQ12 | Synaptics PS/2 TouchPad |
| IRQ13 | Numeric data processor |
| IRQ14 | Primary IDE channel |
| IRQ15 | Secondary IDE channel |

*Default configuration; audio possible configurations are IRQ5, IRQ7, IRQ9, IRQ10, or none.

NOTE: PC Cards may assert IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, or IRQ15. Either the infrared or the serial port may assert IRQ3 or IRQ4.

System I/O address specifications

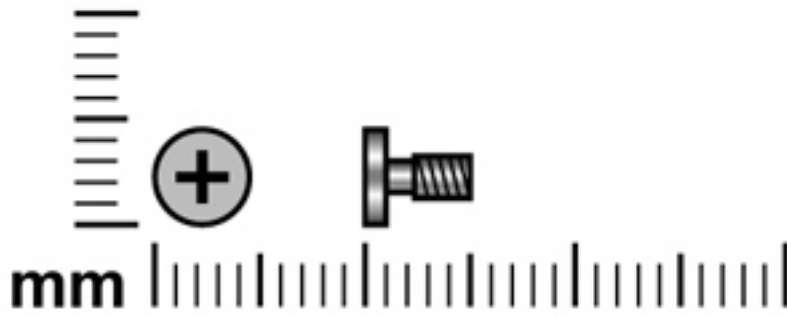
| I/O address (hex) | System function (shipping configuration) |
|-------------------|--|
| 000 - 00F | DMA controller no. 1 |
| 010 - 01F | Unused |
| 020 - 021 | Interrupt controller no. 1 |
| 022 - 024 | Opti chipset configuration registers |
| 025 - 03F | Unused |
| 02E - 02F | 87334 "Super I/O" configuration for CPU |
| 040 - 05F | Counter/timer registers |
| 044 - 05F | Unused |
| 060 | Keyboard controller |
| 061 | Port B |
| 062 - 063 | Unused |
| 064 | Keyboard controller |
| 065 - 06F | Unused |
| 070 - 071 | NMI enable/RTC |
| 072 - 07F | Unused |
| 080 - 08F | DMA page registers |
| 090 - 091 | Unused |
| 092 | Port A |
| 093 - 09F | Unused |
| 0A0 - 0A1 | Interrupt controller no. 2 |
| I/O Address (hex) | System function (shipping configuration) |
| 0A2 - 0BF | Unused |
| 0C0 - 0DF | DMA controller no. 2 |
| 0E0 - 0EF | Unused |
| 0F0 - 0F1 | Coprocessor busy clear/reset |
| 0F2 - 0FF | Unused |
| 100 - 16F | Unused |
| 170 - 177 | Secondary fixed disk controller |
| 178 - 1EF | Unused |
| 1F0 - 1F7 | Primary fixed disk controller |
| 1F8 - 200 | Unused |
| 201 | JoyStick (decoded in ESS1688) |
| 202 - 21F | Unused |

| I/O address (hex) | System function (shipping configuration) |
|--------------------------|---|
| 220 - 22F | Entertainment audio |
| 230 - 26D | Unused |
| 26E - 26 | Unused |
| 278 - 27F | Unused |
| 280 - 2AB | Unused |
| 2A0 - 2A7 | Unused |
| 2A8 - 2E7 | Unused |
| 2E8 - 2EF | Reserved serial port |
| 2F0 - 2F7 | Unused |
| 2F8 - 2FF | Infrared port |
| 300 - 31F | Unused |
| 320 - 36F | Unused |
| 370 - 377 | Secondary diskette drive controller |
| 378 - 37F | Parallel port (LPT1/default) |
| 380 - 387 | Unused |
| 388 - 38B | FM synthesizer—OPL3 |
| 38C - 3AF | Unused |
| 3B0 - 3BB | VGA |
| 3BC - 3BF | Reserved (parallel port/no EPP support) |
| 3C0 - 3DF | VGA |
| 3E0 - 3E1 | PC Card controller in CPU |
| 3E2 - 3E3 | Unused |
| 3E8 - 3EF | Internal modem |
| 3F0 - 3F7 | "A" diskette controller |
| 3F8 - 3FF | Serial port (COM1/default) |
| CF8 - CFB | PCI configuration index register (PCIDIVO-1) |
| CFC - CFF | PCI configuration data register (PCIDIVO-1) |

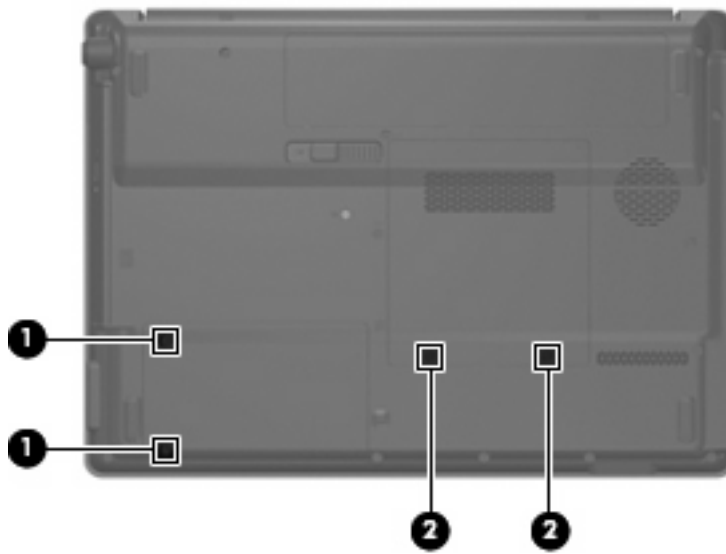
7 Screw listing

This section provides specification and reference information for the screws and screw locks used in the computer. All screws and screw locks listed in this section are available in the Screw Kit, spare part number 454951-001, and the Display Screw Kit, spare part number 454918-001.

Phillips PM2.0×5.0 captive screw



| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 4 | 5.0 mm | 2.0 mm | 5.0 mm |

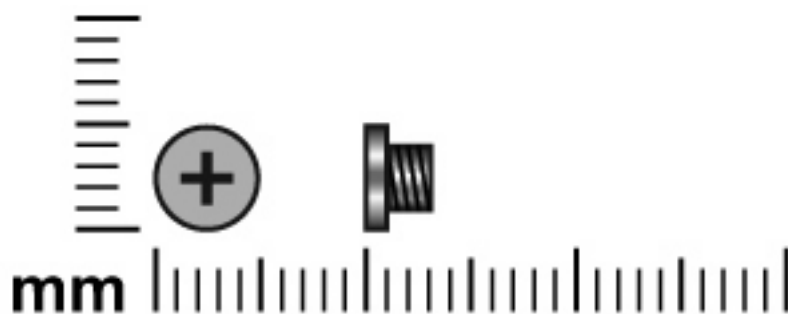


Where used:

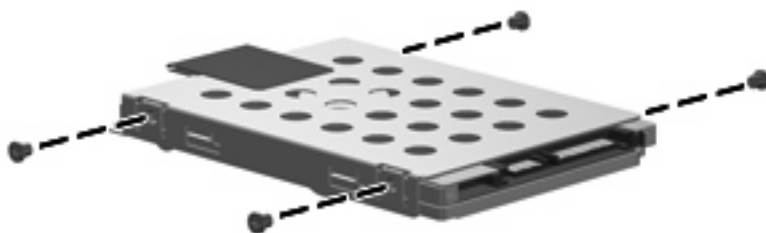
(1) Two captive screws (secured by C-clips) that secure the hard drive bay cover to the computer

(2) Two captive screws (secured by C-clips) that secure the memory/wireless module compartment cover to the computer

Phillips PM3.0×3.0 screw

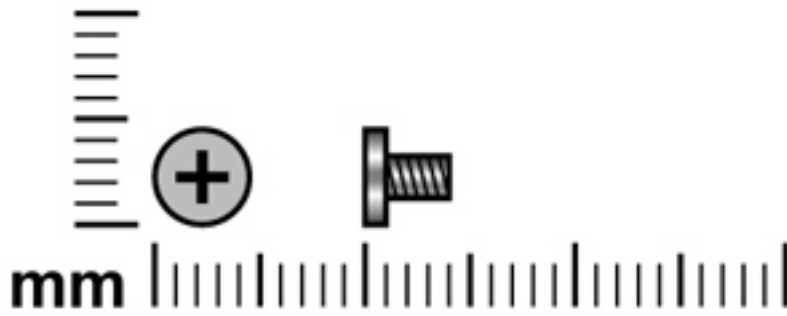


| Color | Quantity | Length | Thread | Head diameter |
|--------|----------|--------|--------|---------------|
| Silver | 4 | 3.0 mm | 3.0 mm | 5.0 mm |

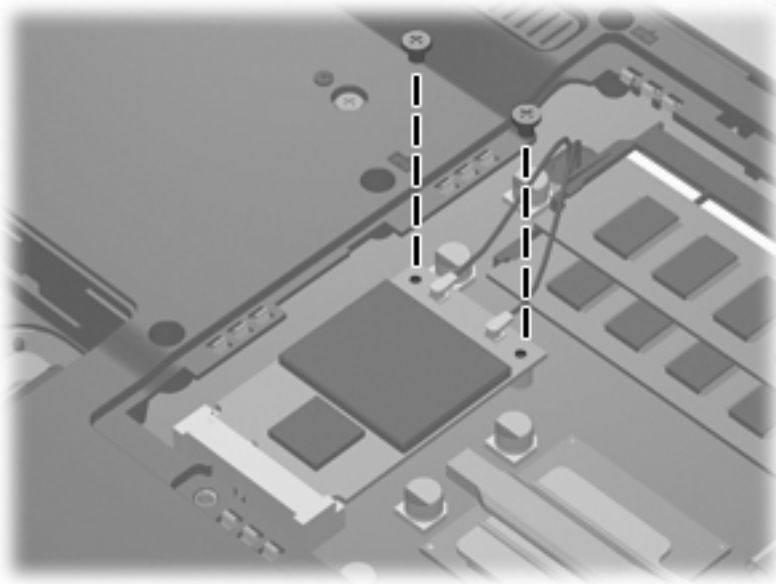


Where used: 4 screws that secure the hard drive bracket to the hard drive

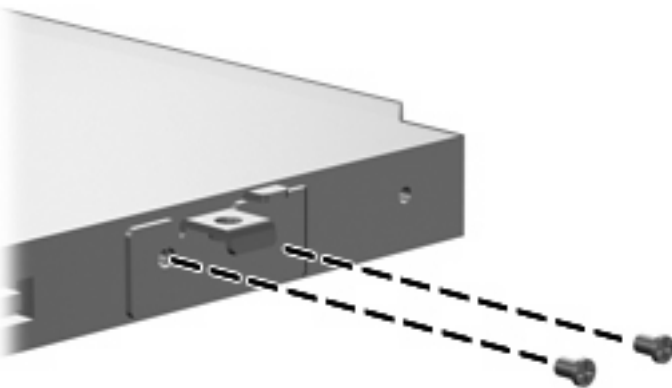
Black Phillips PM2.0×4.0 screw



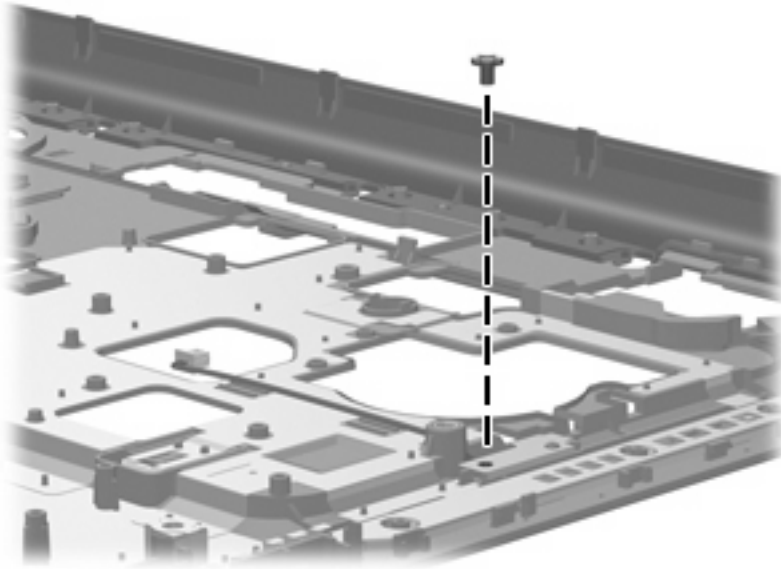
| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 8 | 4.0 mm | 2.0 mm | 5.0 mm |



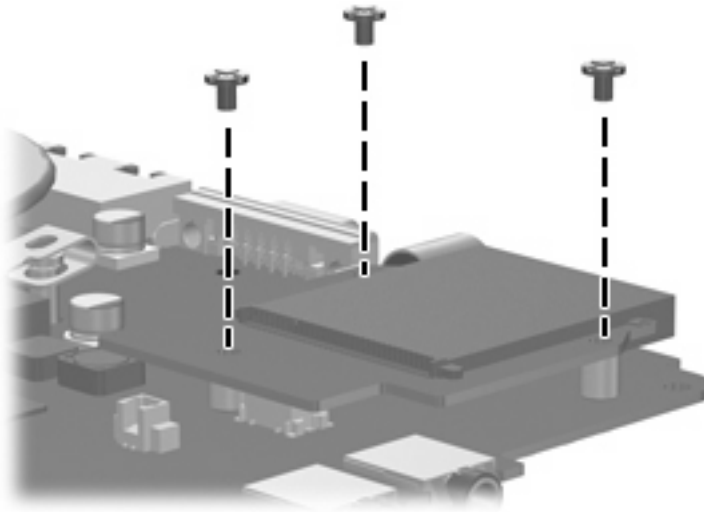
Where used: 2 screws that secure the WLAN module to the system board



Where used: 2 screws that secure the optical drive bracket to the optical drive

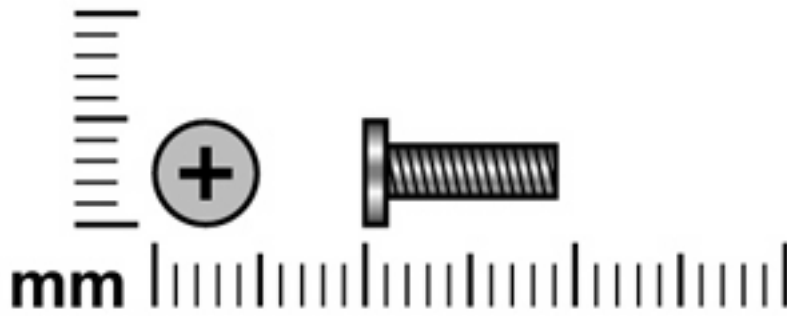


Where used: One screw that secures the caps lock LED board to the top cover

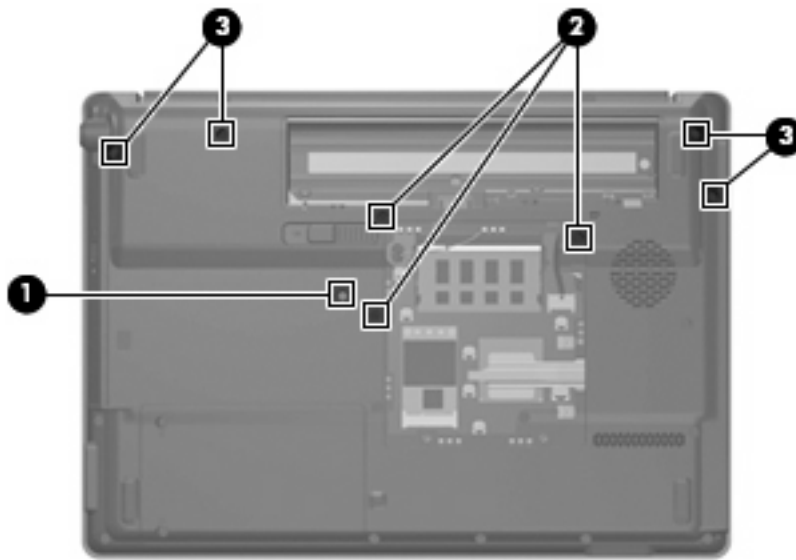


Where used: 3 screws that secure the card reader board to the system board

Phillips PM2.5×9.0 screw

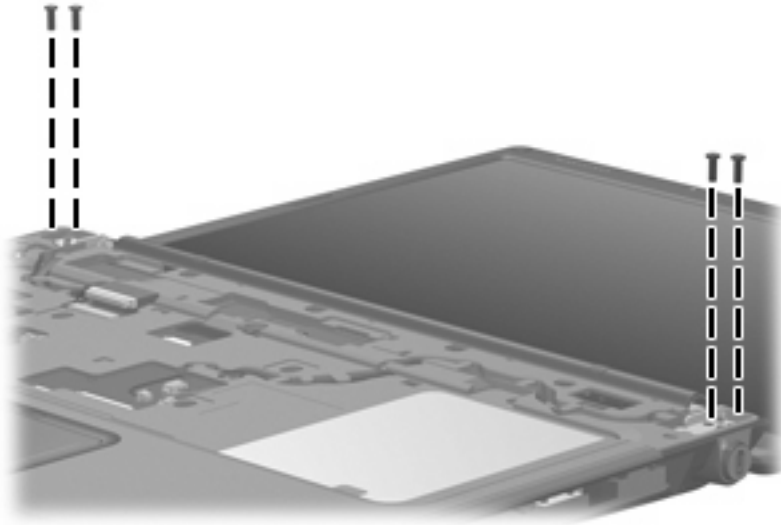


| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 22 | 9.0 mm | 2.5 mm | 5.0 mm |

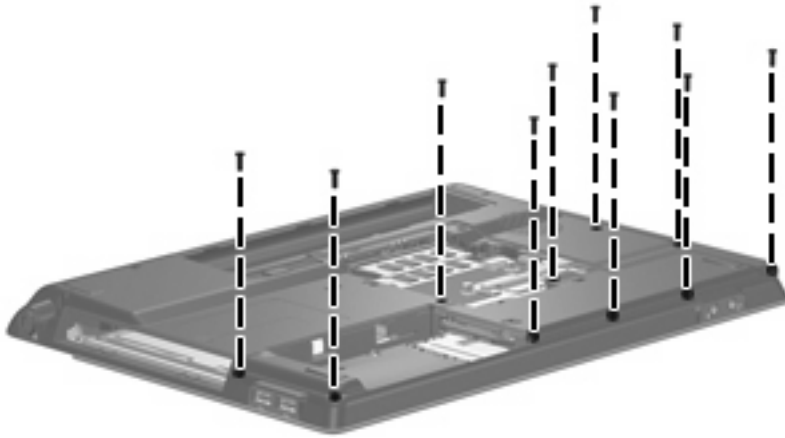


Where used:

- (1) One screw that secures the optical drive to the computer
- (2) Three screws that secure the keyboard to the computer
- (3) Four screws that secure the switch cover to the computer

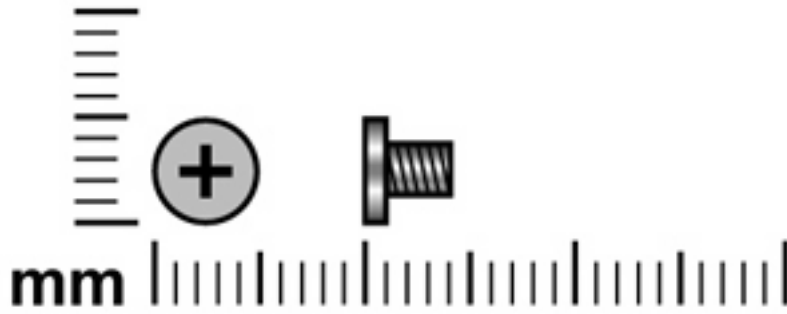


Where used: 4 screws that secure the display assembly to the computer

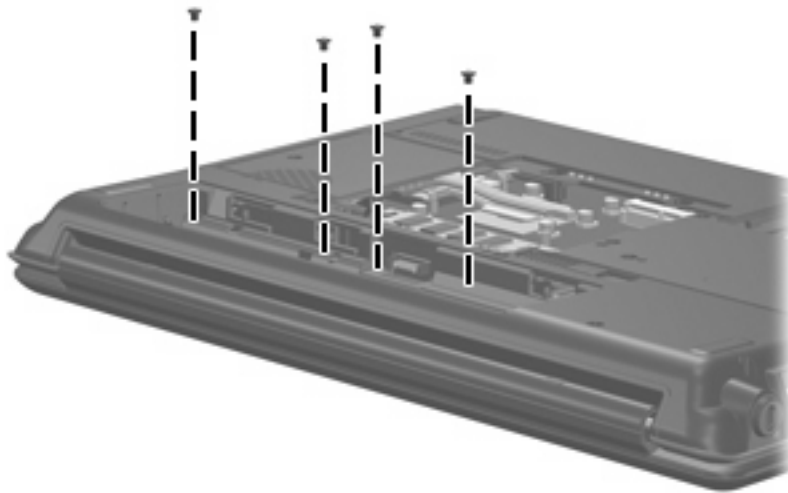


Where used: Ten screws that secure the top cover to the base enclosure

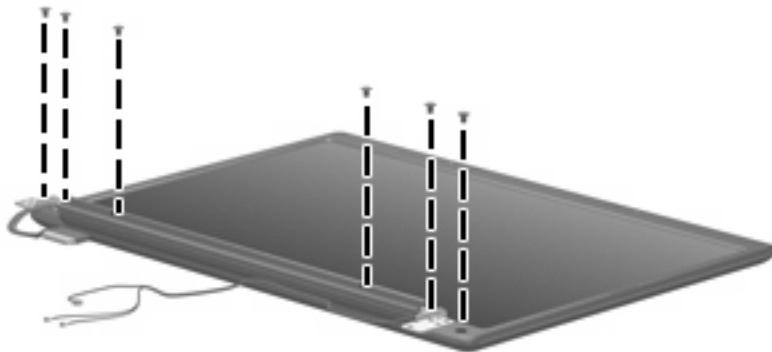
Phillips PM2.5×4.0 screw



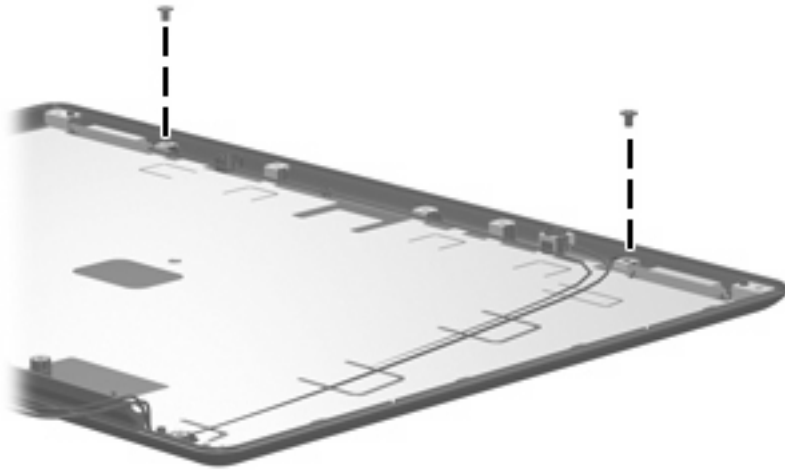
| Color | Quantity | Length | Thread | Head diameter |
|-------|----------|--------|--------|---------------|
| Black | 19 | 4.0 mm | 2.5 mm | 5.0 mm |



Where used: 4 screws that secure the switch cover to the computer



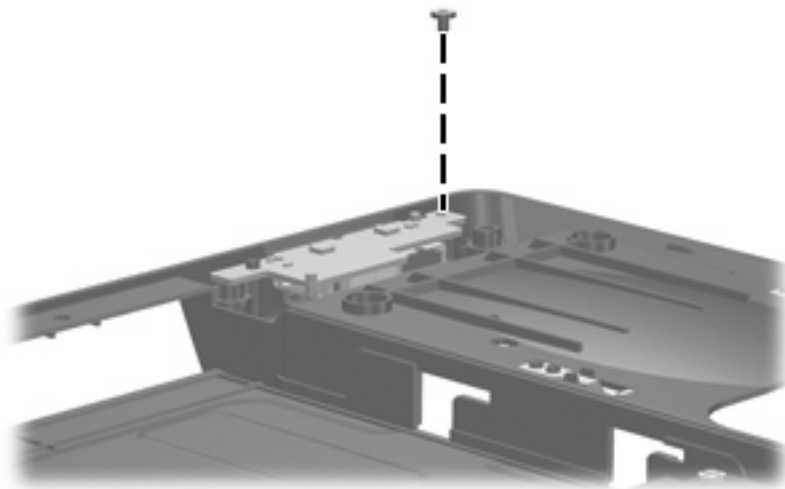
Where used: 6 screws that secure the display panel to the display enclosure



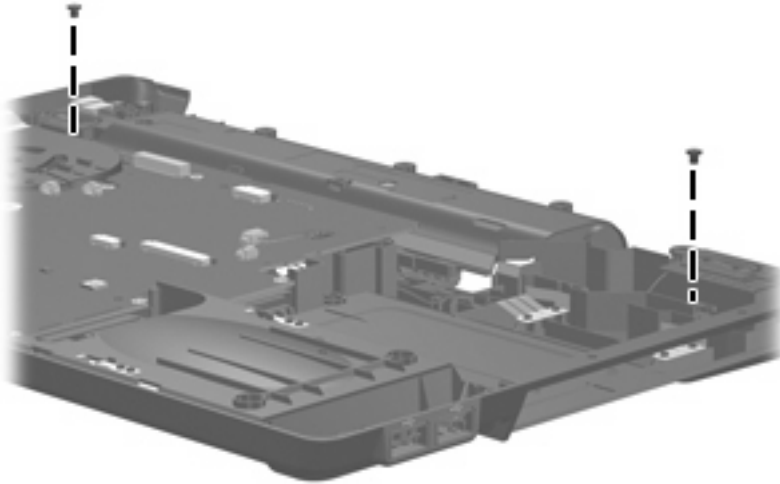
Where used: 2 screws that secure the wireless antenna transceivers to the display enclosure



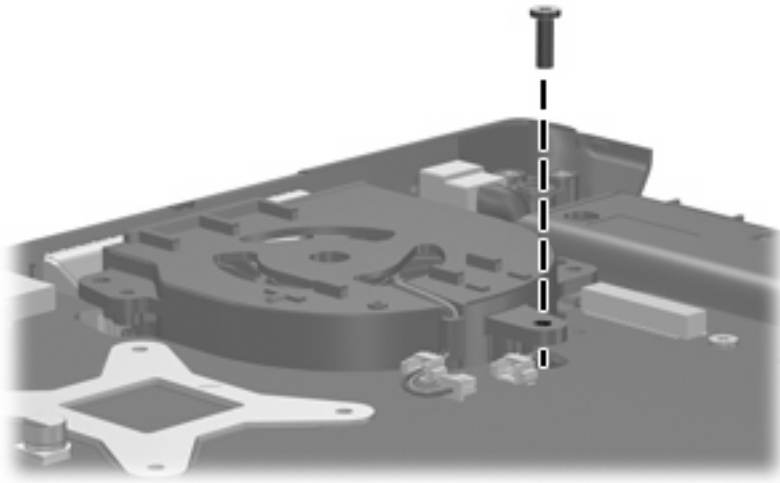
Where used: 2 screws that secure the top cover to the base enclosure



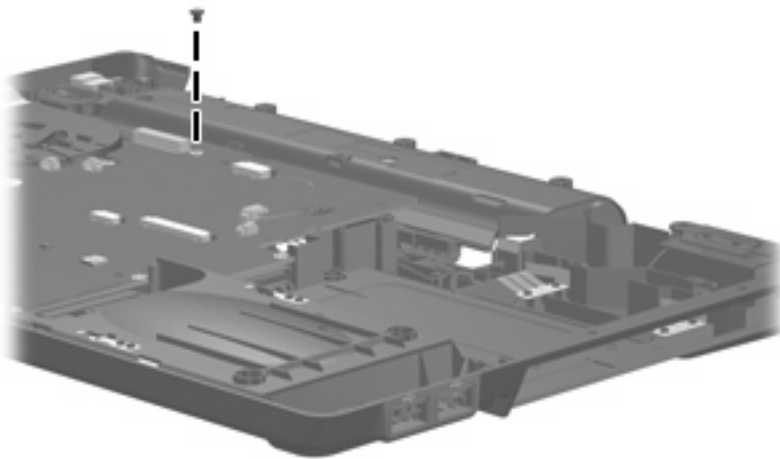
Where used: One screw that secures the USB board to the base enclosure



Where used: 2 screws that secure the speakers to the base enclosure

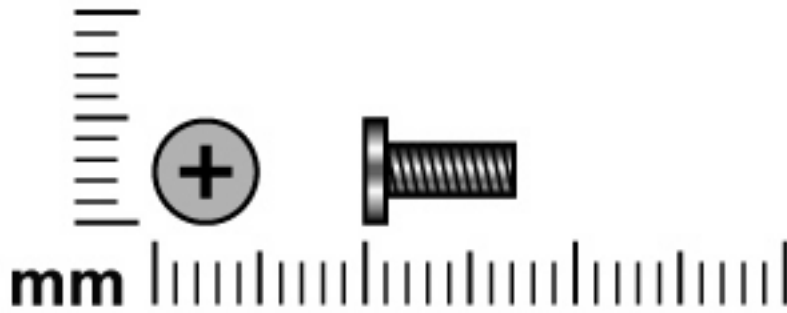


Where used: One screw that secures the fan to the base enclosure

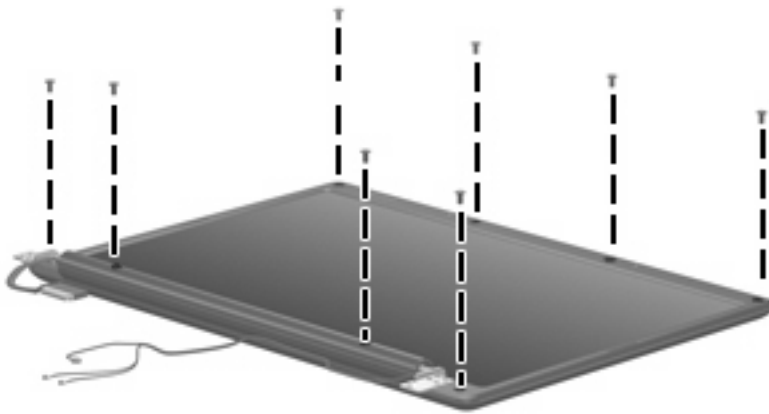


Where used: One screw that secures the system board to the base enclosure

Phillips PM2.5×7.0 screw

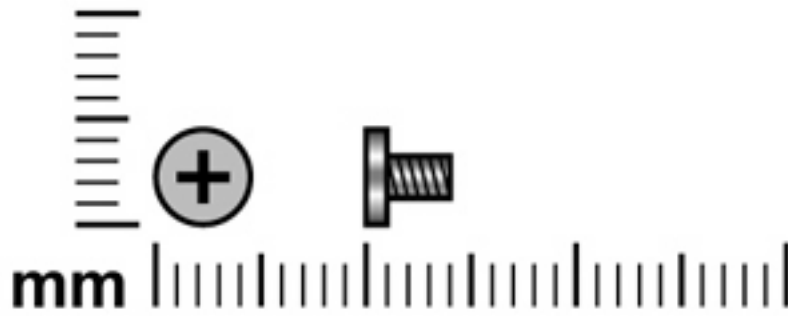


| Color | Quantity | Length | Thread | Head diameter |
|--------|----------|--------|--------|---------------|
| Silver | 8 | 7.0 mm | 2.5 mm | 5.0 mm |

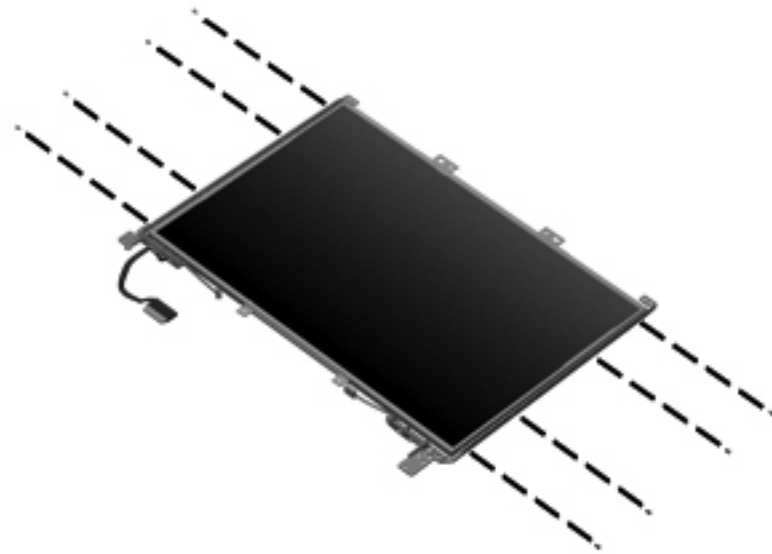


Where used: 8 screws that secure the display bezel to the display assembly

Silver Phillips PM2.0×4.0 screw

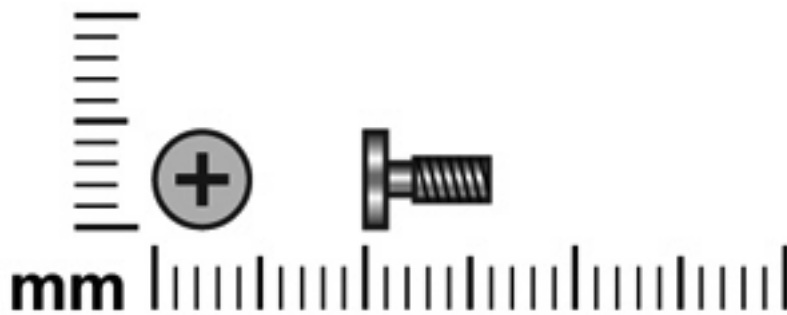


| Color | Quantity | Length | Thread | Head diameter |
|--------|----------|--------|--------|---------------|
| Silver | 8 | 4.0 mm | 2.0 mm | 4.5 mm |

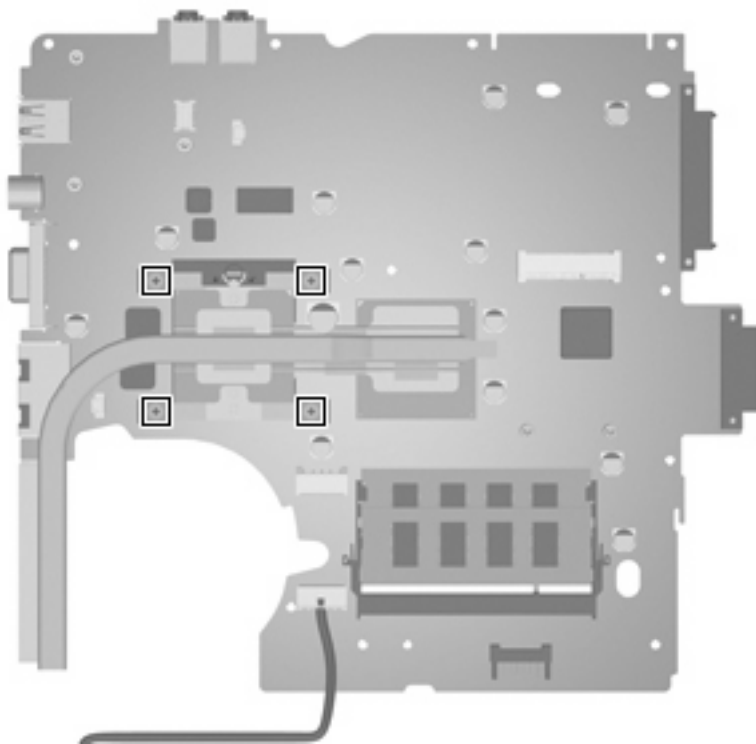


Where used: 8 screws that secure the display hinges to the display panel

Phillips PM2.5×6.0 captive screw



| Color | Quantity | Length | Thread | Head diameter |
|--------|----------|--------|--------|---------------|
| Silver | 4 | 6.0 mm | 2.5 mm | 5.0 mm |



Where used: 4 screws that secure the heat sink to the system board

8 Backup and Recovery

Recovering system information

Tools provided by the operating system and Recovery Manager software are designed to help you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Back up your information regularly to protect your important system files.
- Make a set of recovery discs (Recovery Manager software feature). Recovery discs are used to start up (boot) your computer and restore the operating system and software programs to factory settings in case of system failure or instability.
- Create system restore points (operating system feature). System restore points allow you to reverse undesirable changes to your computer by restoring the computer to an earlier state.
- Recover a program or driver (Recovery Manager software feature). This feature helps you reinstall a program or driver without performing a full system recovery.
- Perform a full system recovery (Recovery Manager software feature). With Recovery Manager, you can recover your full factory image if you experience system failure or instability. Recovery Manager works from a dedicated recovery partition on the hard drive or from recovery discs you create.

Backing up your information

When to back up

- On a regularly scheduled basis.

 **NOTE:** Set reminders to back up your information periodically.

- Before the computer is repaired or restored.
- Before you add or modify hardware or software.

Back up suggestions

- Create system restore points using the Windows System Restore feature.
- Store personal files in the Documents folder and back up these folders periodically.
- Back up templates stored in their associated programs.
- Save customized settings in a window, toolbar, or menu bar by taking a screen shot of your settings.


The screen shot can be a time saver if you have to reset your preferences.

To copy the screen and paste it into a word-processing document:

- a. Display the screen.
- b. Copy the screen:
 - To copy only the active window, press **alt+fn+prt sc**.
 - To copy the entire screen, press **fn+prt sc**.
- c. Open a word-processing document, and then select **Edit > Paste**.

Using system restore points


When you back up your system, you are creating a system restore point. A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to your system.

 **NOTE:** Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

You also can create additional restore points to provide increased protection for your system files and settings.

When to create restore points

- Before you add or extensively modify software or hardware.
- Periodically, whenever the system is performing optimally.

 **NOTE:** If you revert to a restore point and then change your mind, you can reverse the restoration.

Create a system restore point

1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System protection**.
3. Click the **System Protection** tab.
4. Under Automatic restore points, select the disk for which you want to create a restore point.
5. Click **Create**.

The System Protection window opens.
6. Follow the on-screen instructions.

Restore to a previous date and time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally, follow these steps:


1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System protection**.
3. Click the **System Protection** tab.
4. Click the **System Restore** button, and then click **Next**.

The System Restore window opens.

5. Follow the on-screen instructions.


Creating recovery discs

Recovery Manager creates a set of recovery CDs or DVDs for the computer. Use recovery discs to restore the operating system and software programs to factory settings, in case of system failure or instability.

 **NOTE:** Handle these discs carefully and keep them in a safe place. The software allows the creation of only one set of recovery discs.

Note the following guidelines before creating recovery discs:

- You will need high quality CD-R, DVD-R, or DVD+R media (purchased separately).

 **NOTE:** Formatted DVD±RW discs and DVD±RW double-layer discs are not compatible with the Recovery Manager software.


- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.
- Number each disc before inserting it into the computer optical drive.
- If necessary, you can exit the program before you have finished creating the recovery discs. The next time you open Recovery Manager, you will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > Recovery Manager > Recovery Manager**.

Recovery Manager opens.


2. Click **Advanced Options**.

 **NOTE:** If you are operating the computer on battery power, you will be prompted to connect to AC power before you can go to the next step.

3. Click **Recovery disc creation**, and then click **Next**.
4. Follow the on-screen instructions.

Reinstalling software programs and drivers

If a program or driver preinstalled at the factory is accidentally erased or is damaged, Recovery Manager allows you to reinstall it.

 **NOTE:** Software not provided with this computer must be reinstalled from the disc provided by the manufacturer or downloaded from the manufacturer's Web site.


NOTE: Before reinstalling the program, be sure it is fully uninstalled.

Recovery Manager replaces corrupted system files and reinstalls deleted system files within the program.

- In most cases, if the program you are reinstalling is still on your computer, the reinstallation process does not affect your personal settings.
- In all cases, if a program has been deleted from your computer, the reinstallation process reinstalls the program or utility to the factory image but cannot restore your personal settings.

Reinstalling preinstalled programs and drivers

1. Remove the program or driver:

 **NOTE:** In some cases, drivers are not listed in the Programs and Features list. If the driver is not listed, it does not need to be removed.


- a. Select **Start > Control Panel > Programs > Uninstall a program**.
 - b. Right-click the program or driver you want to remove, and then click **Uninstall**.
2. Reinstall the program or driver:
 - a. Select **Start > All Programs > Recovery Manager > Recovery Manager**.
Recovery Manager opens.
 - b. Click **Advanced Options**.
 - c. Click either **Software program re-installation** or **Hardware driver re-installation**, and then click **Next**.
 - d. Follow the on-screen instructions.
 - e. Restart the computer if prompted.

Reinstalling programs from discs

1. Insert the disc into the optical drive.
2. When the installation wizard opens, follow the installation instructions on the screen.
3. Restart the computer if prompted.

Performing a recovery

Recovery Manager software allows you to repair or restore the system if you experience system failure or instability. Recovery Manager works from recovery discs that you create or from a dedicated recovery partition on the hard drive.

 **NOTE:** Windows has its own built-in repair features, such as System Restore and driver rollback capabilities. If you have not already tried these features, try them before using Recovery Manager.

NOTE: Recovery Manager only recovers software that was preinstalled at the factory. Software not provided with this computer must be reinstalled from the disc provided by the manufacturer or downloaded from the manufacturer's Web site.

Recovering from the recovery discs

To restore the system from the recovery discs:

1. Back up all personal files.
2. Insert the first recovery disc into the optical drive and restart the computer.
3. Follow the on-screen instructions.

Recovering from the partition on the hard drive

You can perform a recovery from the partition on the hard drive from either the Start button or [f11](#).

To restore the system from the partition, follow these steps:

1. Access Recovery Manager in either of the following ways:
 - Select **Start > All Programs > Recovery Manager > Recovery Manager**.
 - Restart the computer and press [f11](#) while the "Press <F11> for recovery" message is displayed on the screen. Then select **Recovery Manager**.

Recovery Manager opens.

2. Click **Advanced Options**.
3. Click **System recovery**, and then click **Next**.
4. Follow the on-screen instructions.

Deleting the recovery partition on the hard drive

The Recovery Manager Advanced Options menu provides the option of deleting the recovery partition, which will increase space on the hard drive. Delete the recovery partition only if you have already created recovery discs.

- △ **CAUTION:** After you create the recovery discs, you can increase space on the hard drive by deleting the recovery partition. However, doing this is not recommended. If you delete this partition, you will lose any information that is on the partition, including Recovery Manager software. Thereafter, you must use the recovery discs to access Recovery Manager software.

To delete the recovery partition:

1. If you have not already created recovery discs, create them now.
2. Select **Start > All Programs > Recovery Manager > Recovery Manager**.
Recovery Manager opens.
3. Click **Advanced Options**.
4. Click **Remove recovery partition**, and then click **Next**.
5. Follow the on-screen instructions.

Updating reinstalled software

After you perform a system recovery, connect to the Internet to update all reinstalled software.

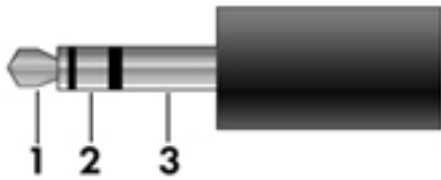
To access update links for the operating system and other software provided on your computer:

- ▲ Select **Start > Help and Support**.

To update optional software, follow the instructions provided by the software manufacturer. Some programs include an update feature you can access from a Help button or menu within the program.

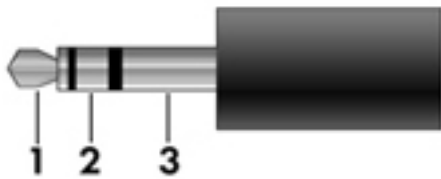
9 Connector pin assignments

Audio-out (headphone)



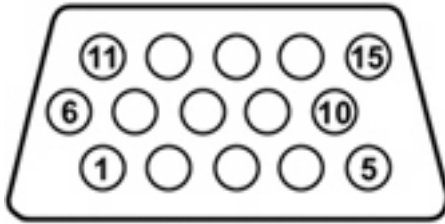
| Pin | Signal |
|-----|--------------------------|
| 1 | Audio out, left channel |
| 2 | Audio out, right channel |
| 3 | Ground |

Audio-in (microphone)



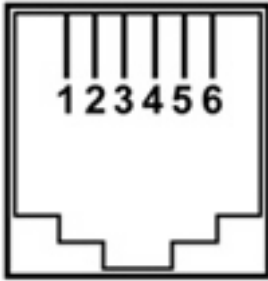
| Pin | Signal |
|-----|-----------------|
| 1 | Audio signal in |
| 2 | Audio signal in |
| 3 | Ground |

External monitor



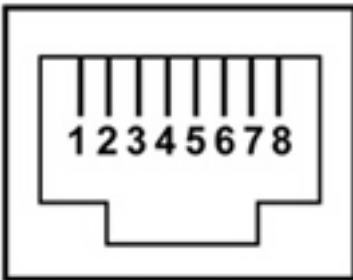
| Pin | Signal |
|-----|-----------------|
| 1 | Red analog |
| 2 | Green analog |
| 3 | Blue analog |
| 4 | Not connected |
| 5 | Ground |
| 6 | Ground analog |
| 7 | Ground analog |
| 8 | Ground analog |
| 9 | +5 VDC |
| 10 | Ground |
| 11 | Monitor detect |
| 12 | DDC 2B data |
| 13 | Horizontal sync |
| 14 | Vertical sync |
| 15 | DDC 2B clock |

RJ-11 (modem)



| Pin | Signal |
|-----|--------|
| 1 | Unused |
| 2 | Tip |
| 3 | Ring |
| 4 | Unused |
| 5 | Unused |
| 6 | Unused |

RJ-45 (network)



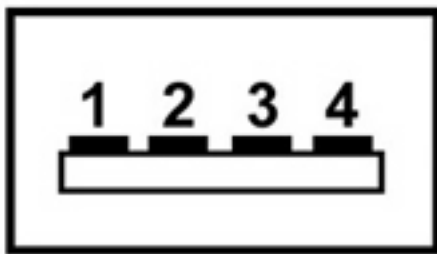
| Pin | Signal |
|-----|------------|
| 1 | Transmit + |
| 2 | Transmit - |
| 3 | Receive + |
| 4 | Unused |
| 5 | Unused |
| 6 | Receive - |
| 7 | Unused |
| 8 | Unused |

S-Video-out



| Pin | Signal |
|-----|----------------------------|
| 1 | S-VHS color (C) signal |
| 2 | Composite video signal |
| 3 | S-VHS intensity (Y) signal |
| 4 | S-VHS color ground |
| 5 | TV-CD |
| 6 | S-VHS intensity ground |
| 7 | Composite video ground |

Universal Serial Bus



| Pin | Signal |
|-----|--------|
| 1 | +5 VDC |
| 2 | Data - |
| 3 | Data + |
| 4 | Ground |

10 Power cord set requirements

The wide range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries or regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries or regions

The requirements listed below are applicable to all countries or regions:

- The length of the power cord set must be at least 1.5 m (5.0 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country or region's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries or regions

| Country/region | Accredited agency | Applicable note number |
|--------------------------------|-------------------|------------------------|
| Australia | EANSW | 1 |
| Austria | OVE | 1 |
| Belgium | CEBC | 1 |
| Canada | CSA | 2 |
| Denmark | DEMKO | 1 |
| Finland | FIMKO | 1 |
| France | UTE | 1 |
| Germany | VDE | 1 |
| Italy | IMQ | 1 |
| Japan | METI | 3 |
| Korea | EK | 4 |
| The Netherlands | KEMA | 1 |
| Norway | NEMKO | 1 |
| The People's Republic of China | CCC | 5 |
| Sweden | SEMKO | 1 |
| Switzerland | SEV | 1 |
| Taiwan | BSMI | 4 |
| The United Kingdom | BSI | 1 |
| The United States | UL | 2 |

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

11 Recycling

Battery

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for computer battery disposal.

Display

- ⚠ **WARNING!** The backlight contains mercury. Caution must be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.
- ⚠ **CAUTION:** The procedures in this appendix can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. Careful handling must be exercised when removing these components.
- 📄 **NOTE: Materials Disposal.** This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities, or see the Electronic Industries Alliance (EIA) Web site at <http://www.eiae.org>.

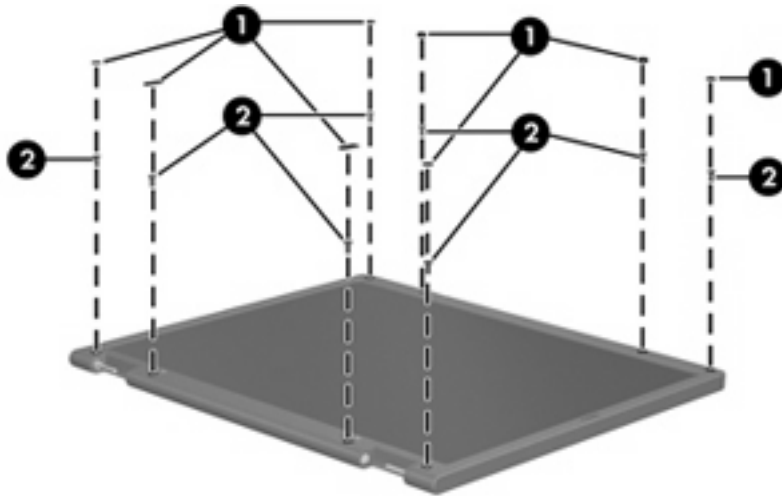
This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight **(1)** and the liquid crystal display (LCD) panel **(2)**.



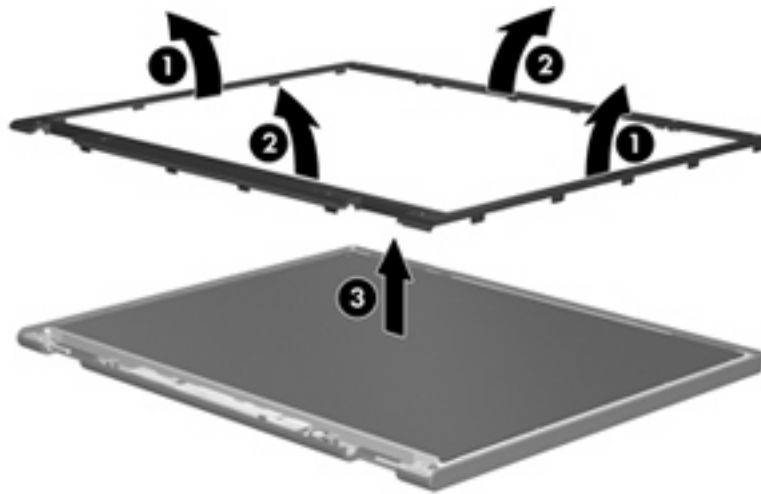
- 📄 **NOTE:** The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

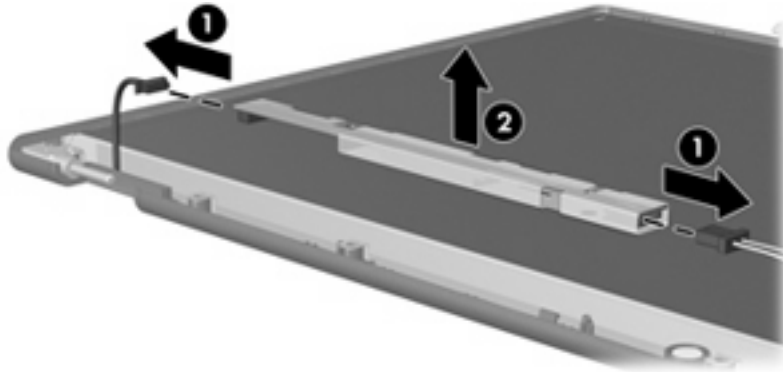
1. Remove all screw covers **(1)** and screws **(2)** that secure the display bezel to the display assembly.



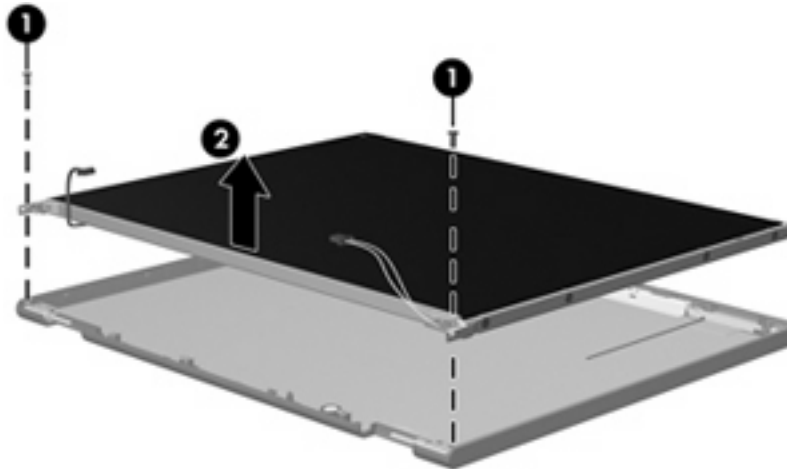
2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel **(3)**.



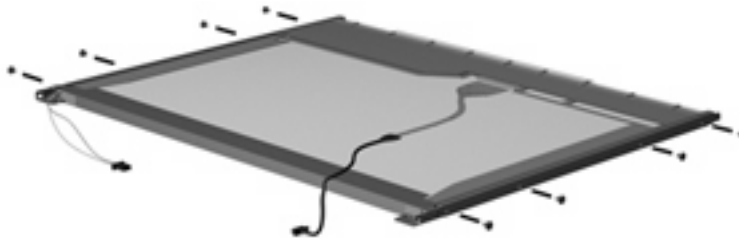
4. Disconnect all display panel cables **(1)** from the display inverter and remove the inverter **(2)**.



5. Remove all screws **(1)** that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly **(2)** from the display enclosure.

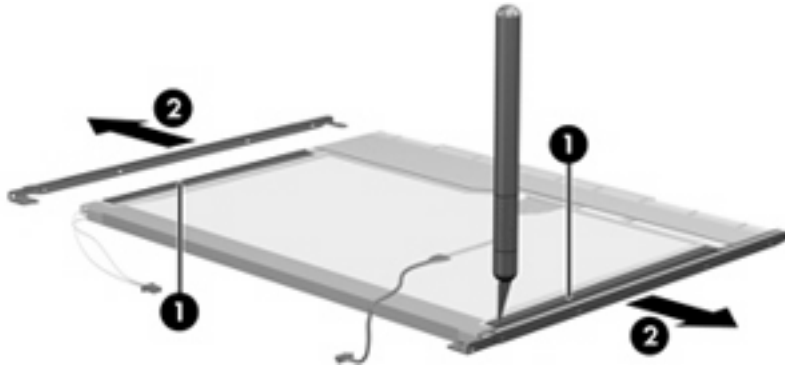


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

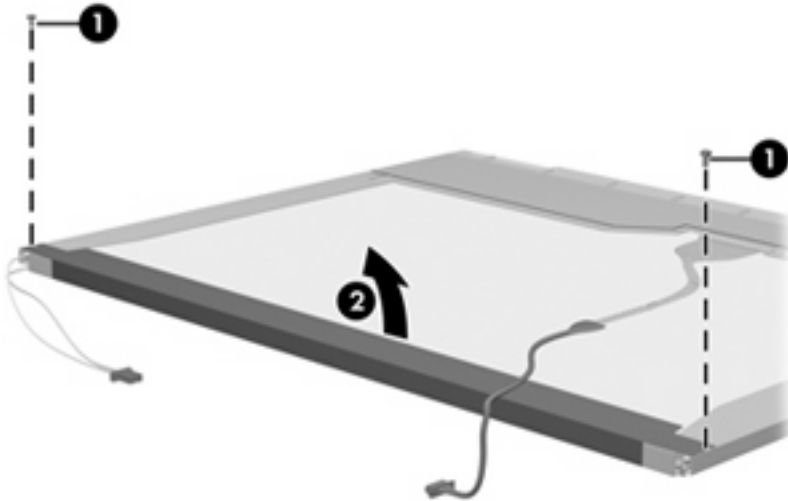


9. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.

10. Remove the display panel frame **(2)** from the display panel.

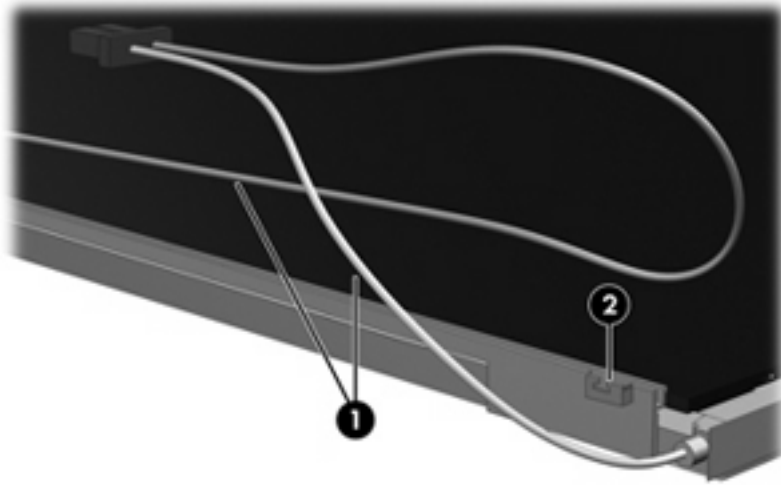


11. Remove the screws **(1)** that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover **(2)** and swing it outward.

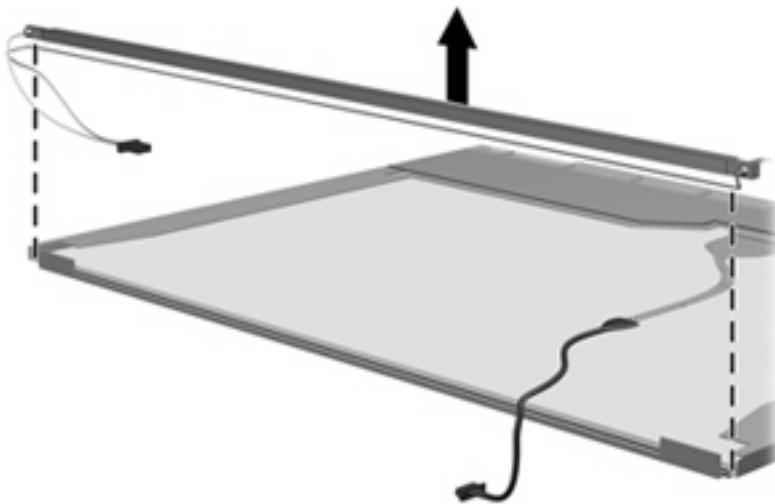


13. Remove the backlight cover.
14. Turn the display panel right-side up.

15. Remove the backlight cables (1) from the clip (2) in the display panel.

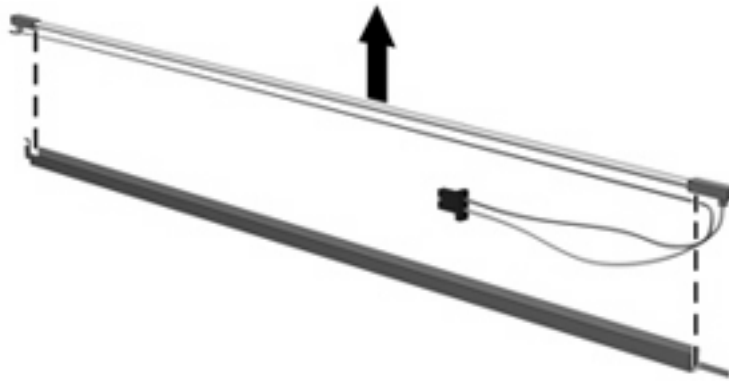


16. Turn the display panel upside down.
17. Remove the backlight frame from the display panel.

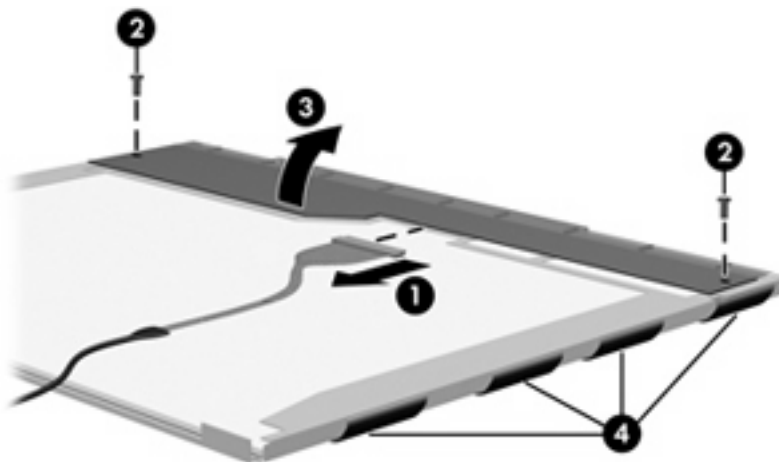


⚠ WARNING! The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

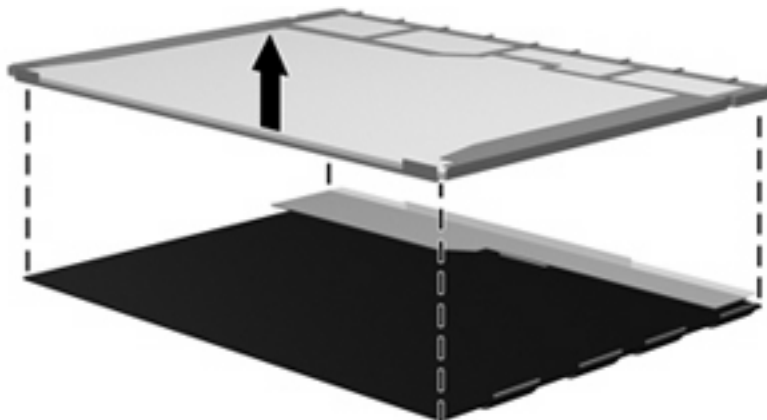
18. Remove the backlight from the backlight frame.



19. Disconnect the display cable (1) from the LCD panel.
20. Remove the screws (2) that secure the LCD panel to the display rear panel.
21. Release the LCD panel (3) from the display rear panel.
22. Release the tape (4) that secures the LCD panel to the display rear panel.



23. Remove the LCD panel.



24. Recycle the LCD panel and backlight.

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